A STUDY OF CUSTOMER ENGAGEMENT INITIATIVES THROUGH DIGITAL MARKETING BY INDIAN RAILWAYS

A

Thesis

Submitted to

For the Award of

DOCTOR OF PHILOSOPHY (Ph.D.)

In

MANAGEMENT

By

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2023

DECLARATION

I, hereby declared that the presented work in the thesis entitled "A Study Of Customer Engagement Initiatives Through Digital Marketing By Indian Railways" in fulfilment of the degree of Doctor of Philosophy (Ph. D.) is the outcome of research work carried out by me under the supervision of Dr Preeti Mehra, working as Professor, in Department of Management, Mittal School of Business of Lovely Professional University, Punjab, India. In keeping with the general practice of reporting scientific observations, due acknowledgments have been made whenever the work described here has been based on the findings of other investigators. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

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CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled " <u>A Study Of Customer Engagement Initiatives Through Digital Marketing By Indian Railways</u>" submitted in fulfilment of the requirement for the reward of the degree of Doctor of Philosophy (Ph.D.) in Department of Management / Mittal School of Business, is a research work carried out by Pragya Mondal, 11916439, is a bonafide record of his/her original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.

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ABSTRACT

The Indian Railways system is the fourth biggest railroad network in the whole world., spanning 67,956 km (42,226 miles) and connecting the interior of the world's seventh largest country with its varied topography, which includes the Great Himalayas, large hill systems, plateaus, plains, massive river basins, deserts, dense forests, and more. Millions of people use the Indian Railways every year, and the organization has responded to the trend toward urbanisation and the need for more immersive travel experiences over the last three decades by offering a wider range of services. It offers an extensive catalogue of travel options, from dirt-cheap fares to first-class suites. The vast variety of people who travel on Indian Railways is one of its defining features. Many different types of passenger services and trains were offered by Indian Railways to meet the demands of its diverse client base. Meeting customer expectations in the face of such enormous diversity and a number of activities is incredibly difficult. Complaints arise when people's expectations aren't realised. Passengers on Indian Railways have been said to range from very happy to extremely dissatisfied. The Minister of Railways apprehended that novel approaches were required to address the problem. He chose to utilise social media platforms to communicate with their customers to have productive customer engagement so that the organisation could satisfy a broad variety of customers' demands. This was done to ensure that the company had successful customer engagement.

The present study is based on three zones of Indian Railways which encompasses the states of West Bengal, Sikkim, Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh, Meghalaya, and Mizoram. It provides a picture of customer engagement towards Indian Railways in the northeast region of India. As such, the research analysis is carried out on the customers of Indian Railways, defined as people who had purchased a ticket for any destination, belonging to these nine states and were well aware of the various social media handles of Indian Railways. The first and foremost objective was to identify a customer engagement framework for Indian Railways. Next objective was to determine factors affecting the customer engagement towards Indian Railways on social media handles. The third objective focused on studying the influence of demographics on customer engagement towards Indian Railways on social media handles based on the framework and factors determined in the previous two objectives. Thus, the five standard dimensions that were identified for measuring

customer engagement towards Indian Railways were Identification, Enthusiasm, Attention, Absorption and Interaction. The current study helps us to understand how customer engagement initiatives through social media platforms are helping transform the organisation into a customer-centric undertaking in the face of digitalisation.

The study also helped in understanding how public sector services could focus on its customers for connecting and engaging with them on social media platforms for better customer engagement. The current study and the framework developed along with the identified dimensions will help the Indian Railways in bringing reforms and enhancing customer engagement across the country. Similar research has been undertaken in other contexts. This contemporary study is distinctive as it provided a fresh perspective on the topic of customer engagement on the social media platforms of government services.

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1. INTRODUCTION

Introduction

Since Gutenberg's printing press in 1450 and Tim Berner Lee's discovery of the World Wide Web (www) in 1989, marketing has progressed from hand-delivered pamphlets and fliers to the electronic posting of online promotions. Customers are now more involved in the research process, actively searching out the goods and services they want, and are more likely to be outspoken and use their voices to influence the market. As of January 2020, around 59 per cent of the world's population, or almost 4.54 billion people, are online. When comparing countries with the most internet users, China comes out on top, followed by India and the United States. Today, it is impossible to imagine doing routine chores without access to the internet. Although it has helped link individuals all over the globe, the internet is currently recognized as the most important medium for disseminating knowledge in the contemporary day. The web presence is strongest in Northern Europe, followed by the United Arab Emirates and South Korea and, the weakest of all in North Korea.

A number of factors, which includes the shift in power from businesses to customers, the proliferation of available products, the saturation of key product categories, the proliferation of communications channels, the proliferation of visual noise in traditional marketing environments, the desire for personalized offerings, consumers' preference for interactive information, consumers' focus on time savings, consumers' need to validate the information, and the marketers' desire to socialize and build trust with their target audiences, have established digital marketing as one of the most effective marketing strategies.

In addition to its value as a low-cost advertising medium, the internet is also being used by businesses as a beneficial marketing tool for fostering the growth of new sales leads and communicating with existing ones. There has been a meteoric surge in the use of the internet and digital marketing strategies in the business world over the last decade. Customers have traditionally used the internet for two main purposes: finding information and making purchases online.

However, this is beginning to change as more companies launch interactive websites and establish customer service departments whose sole purpose is to address and resolve customer complaints. Internet Online Association India estimates that 63% of the market is occupied by the sale of transportation tickets (train, plane, and bus), while

the remaining 37% is made up of other categories including books, music, video games, and festival buying (Sheth et. al., 2022).

1.1. Indian Railways

Founded - 16th April 1857.

Headquarters - New Delhi, India. Owners - Republic of India (100%).

Employees - 16,00,000

Divisions - 17, including Konkan Railways.

Route Length - Over 63,000 km.

Ranking wise Indian Railways is the fourth largest in the world after USA, Russia and China. It is the largest railway network in Asia and the second largest such institution under a single management.

Figure 1.1: Organizational Structure of Indian Railways
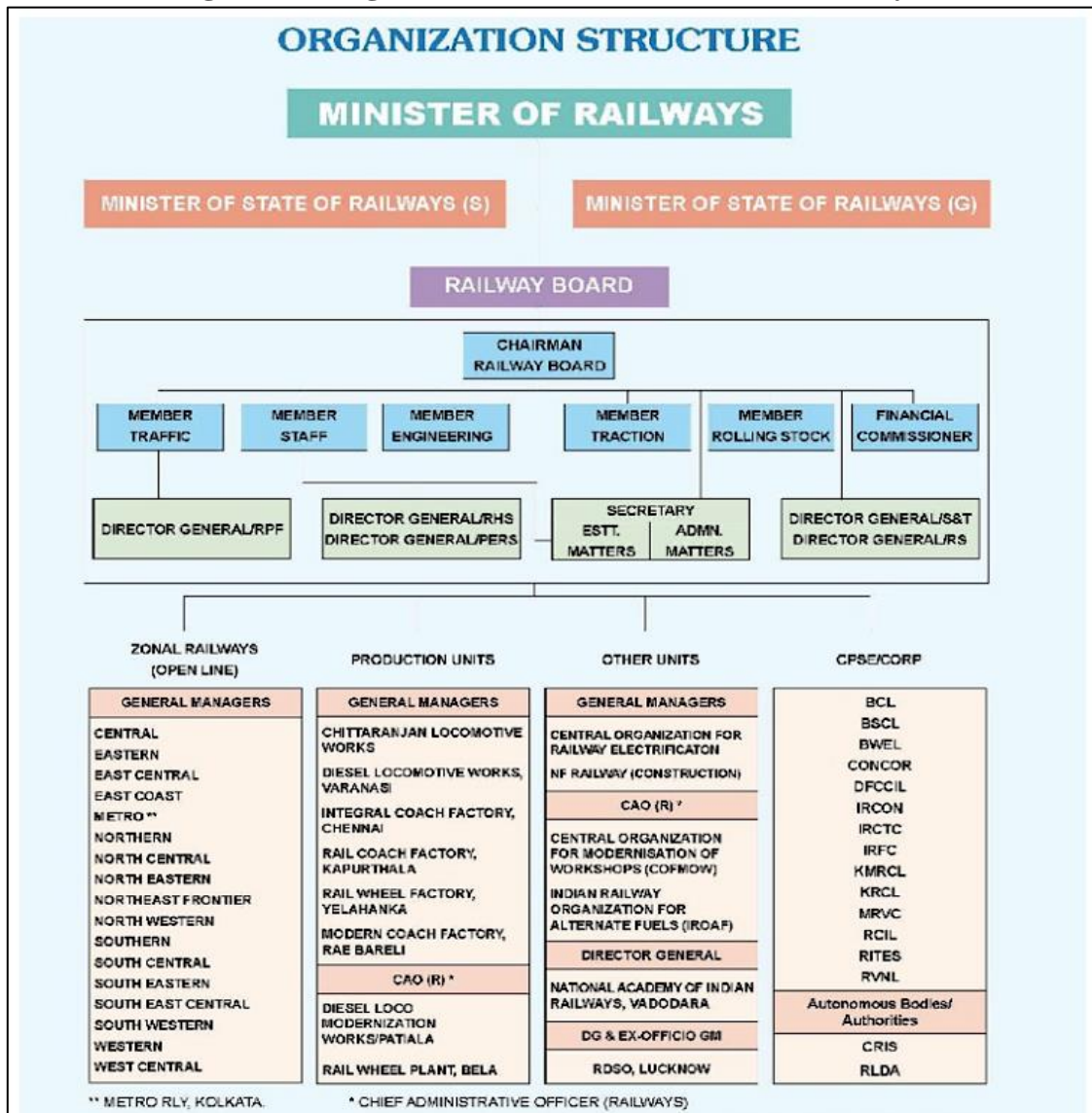
With approximately 65,000 running commuter coaches in 17 zones and 68 sub-zones, it is considered the backbone of the Indian economy; as it transports over 1.8 billion passengers and above 1.1 billion tonnes of freight. Figure 1.1 shows the organisational structure of Indian Railways.

With increasing modernisation the Rail Budget has focused on FDI as a major funding aspect. Some of the plans include stronger tracks with scientifically superior rails, state-of-art electric and diesel locomotives with higher horsepower, modular high-speed traveller coaches, and optic fibre and digital conversion in communications.

1.1.1. The Digitalisation of Indian Railways

The Online Ticketing Platform was introduced by CRIS as part of Indian Railways' foray towards digitalization to attract more customers and relieve the strain caused by the peak hour rush of three million. They expanded their offerings to include social media and mobile applications.

Upon introduction of digital technology, Indian Railways underwent a number of transformations, some of the most noted ones are - privatisation of the catering and tourism aspect of the Railways thus the birth of Indian Railways Catering and Tourism Corporation (IRCTC); increase in the number of super-fast trains such as Rajdhani's, Durontos with the future vision and soon to be a reality Bullet trains and Talgos in the near future; real time tracking online and mobile applications of train details tracking; recently, Google and Indian Railways came together for Project Nilgiri under which the aim is to set up Wi-Fi hotspots around 400 railways stations across India; again in collaboration with Google Indian Railways is all set to digitalise its heritage assets in the form of a repository of digital universal online free access, thus, helping Indian Railways in creating a comprehensive conservation management plan to promote and preserve its rich heritage of steam locos, coaches, station buildings, bridges ,etc; creation of FOIS, Railnet, for online freight and intrazonal connectivity and tracking; and, launching of mobile applications for online reservations and aiding the passengers in having a real time train running status at any time.

Some of the long-term and short-term benefits of Indian Railways' digitalisation can be enumerated as follows-

a. Drastic positive change in customer experience panning from pre/post ticket booking enquiry, ticket reservation, online food service on track, wheelchair/cab/cloakroom/retiring room booking to sharing of feedback and complaints.

b. Statistically speaking with the shift from web-based to mobile applications there has been an increase in the online purchasing of tickets from 50% to 65%, thus adding revenue of INR 600 million each day from the revenue generated from E-Ticket sales (Statista Research Department, 2021).

c. Another statistical proof of the benefit of Indian Railways digitalisation is an increase in per day sales of tickets from 200 e-tickets per day to 10000 e-tickets per minute which increases during major festivals in India (Statista Research Department, 2021).

d. With its presence on social media platforms, there is now a sense of transparency, information sharing, press releases, complaints, developments, feedback and refunds to the consumers and uniformity of communication between both sides.

e. By integrating Internet services of their own (Railnet) there is a smoothness of human resources management, cost cuts, and better management of the services prodded with interconnectivity among the sub-departments and zones.

1.1.2. The Social Media Cell of Indian Railways

Of all the strategies used for marketing by the Indian Railways, it all comes down to passenger safety, connectivity, value-added services, affordability, comfort, passenger amenities and maintenance. To have an effective marketing strategy, a robust grievance redressal system is required as all marketing strategy is primarily focused on consumers and an unfulfilled or grudging consumer is a sales loss and a marketing failure for the company and thus starting the vicious circle of negative word-of-mouth and additional marketing cost for the company. Thus, the redressal system should be at both customer as well as employment levels for the same reasons.

In the initial 4 months or so, it was all a one-man show for the social media cell of Indian Railways, by Mr Ved Prakash (Rathi, 2017), who himself was a newbie to the social media platform and was with the Indian Railways posted in Dhanbad for 5 years. The scenario changed by January 2016, wherein there was a proper social media cell for the Indian Railways, consisting of 15 members and was situated on

the fifth floor of Rail Bhawan under the alias of Public Grievance Cell with two individuals allocated specifically for the complaints received from the Indian Railway Catering and Tourism and Corporation (IRCTC). This was a team trained in the utilisation of social media, customer service, approaching distressed passengers and complaint resolution.

As of June 2019, Indian Railways decided to hire a team of professional PR professionals to run its publicity campaign at, both its Central office as well as in their zones under a set of guidelines to manage their publicity. The framework of 70 officers, which included the one chief Public Relations Officer (PRO) of each of the 17 zones, who were responsible for the dissemination of information through social media, was proposed to be changed for better reach of their publicity reach in an environment where Railways is facing stiff competition from the airlines. The Indian Railways plans to hire a team of 17 trained professionals including a team leader, a social media manager, a content analyst, content writers, and video editors amongst others who would be engaged in each of the zones.

The primary focus of these teams would be to create strategies for Facebook, Twitter, Instagram and other social media platforms to identify the issues, themes and social media influencers for having a better impact on the public and also in uplifting their image in a positive direction. This includes creating a dashboard on the website of their respective zones' website wherein news articles, television clips, etc would be available which would help Indian Railways to create a humane touch with their customers. Already the Western Zone of Indian Railways has outsourced their PR, and the other 17 zones are to follow the same suit, and also the upper officials of the Indian Railways are instructed to have their Twitter handles made and grievances regarding their zones are to be dealt with in a day at the longest. Reports of each PR team were suggested to be made in collaboration with national analysts and submitted to the senior officials which would in turn be disseminated to the common public to stage credibility with the customers.

Western Railways outsourced its public relations activities to Ventures Advertising Pvt. Ltd. in 2018. This was done to be in sync with the digital India initiative of the Indian Government and also to have an effective mechanism to have commuters and passengers engage with zonal as well as divisional officials so that their problems were

heard by the system. They came up with hashtags such as #TicketToSuraksha to #WRKiSawari and used the catchy tune of Apna Time Aayega to correspond to the ticketless travelling of passengers by creating its extension of "Tera Time Aayega". They also came up with the concept of a mascot wherein they launched Dablu R as their mascot at the Churchgate station. Such campaigns have created hype amongst the commuters of the Western Railways and have caught their imagination as well as kept the commuters engaged and entertained throughout their journey.

Social media marketing for any government office or department is a herculean task as the marketing is not done with a certain type of consumers in mind but for the general public at large. Thus, it creates the dual pressure of information dissemination as well as entailing capturing, holding and creating suspense amongst the commuters in the long run. Such initiatives will soon be undertaken by the other zones as well through the tendering process.

When we talk about the working of the Tweets received by the Indian railways, all the tweets are first received by "OneDirect", which are then redirected to three aspects viz., low, high or urgent priority, which is based on the keywords used in the tweet. Further details are then collected from the passenger i.e., their train number, platform number, coach number and PNR. It is then redirected to the concerned official of the concerned zone with a target of 8 minutes to redress the problem. Some of the salient features of Indian Railways Twitter-based complaint redressal system are as follows-

- "OneDirect" receives tweets from about 23 billion passengers daily with the complaint rate being 7000 compliant tweets daily and successfully handles them daily.
- It is a 24x7 process, meaning for every complaint received a ticket corresponding to it is created which until resolved is monitored closely.
- Tweets are classified into three categories critical, noncritical and suggestions, with the critical complaints being conveyed to the concerned official via SMS or call for rapid action.
- Positive feedback is captured through sentiment analysis and such feedback or a complaint or suggestions are then used for identifying and mitigating issues curtailing a particular train, station or service.

Indian Railways has used social media for understanding their customers' needs and expectations, encouraging customer involvement, and customer retention and create

additional revenue opportunities, enhancing brand loyalty and creating organisational perception as a catalyst for word-of-mouth for existing customers. Social media was used by Indian Railways for broadcasting the Live budget of the Union Government, asking for ideas from the public for improving their existing services and for bringing forward new services or for the improvement of the problematic areas, promoting safety measures that can be undertaken by the public as well as the safety measures present for them, for information dissemination, for having a swift and responsive complaint redressal system and lastly to contribute towards the empathetic image of the Indian Railways.

1.1.3.   Online Services of Indian Railways

Under the leadership of Suresh Prabhu, back in 2016 the then Union Railway Minister, active use of social media was used to spearhead the various digital initiatives to be in sync with the Digital India picture put forth by the Indian Government. A triple effect was instantly formed with the general public creating Twitter handles just to vocalise their grievances and mandatory for the government officials at Rail Bhawan to have their accounts made for mitigating the same. This was one of the many steps taken by the Indian Government to have their presence felt in the virtual world and to assure the consumers that they were their priority.

The most noticeable change is the progressive change from a paper ticketing system to online ticketing. With this single change itself, the number of passengers travelling daily had a quantum leap within a year of its induction. Indian railways have come a long way since they adopted digital marketing and have a long way to go as right now it is still in the pre-bubble phase and with more and more investments, more opportunities are up and the user base is increasing exponentially for the same. Some of the most noticeable online services of Indian Railways are as follows-

1. **Centre for Railway Information System (CRIS)** - CRIS was set up by the Ministry of Railways as a society in July 1986, headquartered in New Delhi with regional offices in Kolkata, Mumbai, Chennai and Secunderabad. It was created to design, develop, implement as well as maintain the information system of Indian Railways and its functions include the spectrum of passenger ticketing, freight operations, train dispatching, crew management, e-procurement, management of fixed and moving assets and production of rolling stock. Information dispersion

encompasses easy-to-access areas to remote locations i.e., from Kargil to Kanyakumari and from Twang to the Andaman Islands. With a personnel count of 800, it includes people from IT professionals, system analysts, program developers and domain knowledge experts. CRIS aims to deliver cost-effective, sustainable and cutting-edge solutions to problems faced daily or for the smooth running of the Railways in the long run. With the focus on fixing and adhering to project schedules, optimising resources and cost, and producing high-quality systems for the delight of the consumers; some of the projects of CRIS include ticketing through mobile phones, linking tickets to Aadhar, tracking trains in real-time with the help go GPS, tracking of rolling stock with the help of radio frequency identification, creating and setting up of geospatial database for the Railways and setting up of state-of-art database centre for the Indian Railways. It has also forayed into international projects through MoUs with them. The most important work for CRIS would be the creation of effective applications which are flawless in working and that they come up with regular updates for the same.

2. **Online Ticketing System** - With the dramatic switch from paper-based ticketing to online ticketing, the concept of E-tickets and I-tickets was adopted by the Indian Railways and both have shown a polynomial upward trend in the aspect of their adoption by consumers. I-tickets were introduced in August 2002, wherein the travellers were able to book a train ticket online and they would get the physical ticket through courier. E-tickets introduced in August 2005, were the same as the I-tickets but they gave travellers the flexibility of having their tickets printed out on their end without the hassle of courier services. E-tickets proved to be a big hit with the consumers as it not only gave the passengers the ease of printing their tickets from their side but also in the aspect of cost wherein service charge for E-tickets was cheaper than I-tickets.

3. **Passenger Reservation System (PRS)** - This online nationwide online passenger reservation and ticketing system of Indian Railways handles an average of 15 lakhs transactions per day with the railways plying about 10 lakh reserved passengers per day. This online service was started by CRIS back in 1986 and was set in four major metros of India viz., Mumbai, Chennai, Kolkata and Delhi initially. CRIS created CONCERT (Countrywide Network for Computerised Enhanced Reservation and Ticketing) for the smooth running of the current PRS system. Till its full functional achievement in 1999, PRS was available in the four major metropolitan cities only. PRS

was set up so that passengers can readily book their tickets hassle-free and that they can do so in advance through their counters present at the stations or through their online link as seen on the official website of Indian Railways or in IRCTC. Details such as passengers' name, train number, boarding station, date of journey, destination station, berth preference, child details (if any), reservation quota (if any), return journey details and meal preferences are to be provided by the passengers and that the same gets reflected on their virtual tickets and then it depends upon the passengers for printing the same or to have it send to them via mail or SMS. Passengers must carry their IDs when tickets are booked through PRS. The whole of PRS is network dependent and the number of transactions is higher than the passengers travelling daily. Activities such as mobile ticket booking, cancellations, and refunds are all done through PRS.

4. **National Train Enquiry System (NTES)** - This too is a nationwide integrated online information system for displaying the latest train running times and for live train tracking. Such information helps passengers who have to travel long distances as longer delays of their trains may hamper their plans in general. Apart from live tracking of train information such as stopping stations, schedule information, delay status, cancelled train information, diverted trains and the platform number where the train is expected to arrive are also reflected. Recent adds to this application are the direction of the travelling trains, the exact location of the passengers' coach, the virtual seating charts as well as the status of waiting tickets, for the latest update of the application.

5. **Unreserved Ticketing System (UTS)** - A major portion of Indian Railways' ticket volume and revenue come from unreserved tickets. Launched in 2018, the UTS app created by CRIS aids passengers to buy unreserved tickets from any railway station provided he/she must be within a 5 km radius of the said railway station. This app also gives services to passengers to buy season tickets and platform tickets (UTSONMOBILE app). Though its pilot project was done in 2014, passengers have now warmed up to it primarily due to the various initiatives of Digital India.

6. **Freight Operations Information System (FOIS)** - This is an indigenously built Management Information System (MIS), by CRIS for freight management of Indian Railways. It plans, monitors, and helps in the decision-making process which in turn results in the better utilisation of rolling stock to reduce the overall operating expenses. The aim behind its usage is to help ease in keeping records of trains/wagons,

loco movement and consignment details, train arrangements, and crew assignments, and also it gives details such as consignment details, train departures, train arrivals, forecast, shunting enroute, loco changes, train stabling, placement, releases, removal of sick lines/goods, loco irregularities and maintenance details. This has facilitated customers to make enquiries regarding the above-mentioned aspects and to get real-time, accurate and reliable information and status regarding the same. FOIS is designed in a modular fashion thus, its implementation and maintenance are taken by CRIS, keeping in consideration the present as well as the future demands from the Indian Railways. Some of the advantages of this system can be said that it aids in global tracking of consignments of trains and wagons, timely planning and just-in-time inventory management, avoiding congestions, better distribution of empties, stock holding management, long-term planning, better management of line capacity holding, accurate statistics related to loading/unloading of freight, providing accurate and consistent information regarding loco/wagon/yard/terminals etc., and its facilities better acceptance of billing, cash accountancy of freight traffic from nodal customer centres. Presently, Terminal Management System (TMS), a sub-part of FOIS, has been deployed to around 500 locations and a pilot project for e-payment of freight has been started in Badarpur Power House, Delhi, which will enable the electronic transfer of the freight amount to the Railways Account.

7. **Railtel** - RailTel Corporation is a mini Ratna Category-I PSU, which provides the largest neutral telecom infrastructure in India with a Pan India optic fibre network on an exclusive Right Of Way (ROW) along the Railway tracks. It encompasses about 70% of Indian cities and towns, over 52,000 km of route, over 5500 POPs and over 24000 high capacity DWDM. Indian Railways was initially dependent on BSNL for their communication circuits and telecom services, thus it became a need for Indian Rain Railways to have its communication circuits. So in the early 1970s Indians, Railways started building their communication circuits comprising of telephone lines, quad cables and microwave signalling. With the introduction of optic fibre cable in the Indian Railways in 1983, a revolution in administrative communication, as well as service communication with the Indian Railways, was seen with safe, reliable, readily available and better service deliverance through this dedicated communications for Indian Railways only. The main objectives of RailTel is to facilitate Railways in expeditious modernising of train operation and safety systems and network by

providing state of art communication network infrastructure, to plan, build, develop, operate and maintain a nationwide broadband telecom and multimedia network to supplement national telecom infrastructure to spur the growth of telecom, broadband and IT-enabled value-added services in all parts of country especially rural, remote and backward areas and to generate revenue through commercial exploitation of its telecom network.

8. **Railnet** - Railnet is the Intranet of Indian railways, which interconnects 17 zonal headquarters, 68 subdivisional offices, production units, and training institutes for information sharing amongst all the departments. Presently the commercial department of Indian Railways is using Railnet as their 'Complaint Centres'. It is accessible to authorised personnel. Railnet also helps in end-to-end solutions and includes features of extraction and segmentation.

9. **Tourism Services (IRCTC)** - Indian Railway Catering and Tourism Corporation Ltd. (IRCTC), too is a mini Ratna company, headquarters in New Delhi, and was incorporated on 27th September 1999, by the Government of India in a bid to upgrade, professionalize and manage the catering, hospitality and tourism service aspect of the Indian railways. It aimed to provide its services at various trains, stations, and locations and promote domestic and international tourism by creating curated tour packages and providing budget hotels for the same. It also aims for effective information dispersion, creating commercial publicity and providing passengers with global reservation solutions all under one roof. IRCTC's core activities include products for catering and hospitality, ticketing solutions, travel and tourism packages and packaged drinking water (Rail Neer). Under IRCTC's control, it has various offices and plants located at various locations. Some of them are - nine Rail Beer bottling plants, four base kitchens, five zonal offices, ten regional offices, one internet ticketing office and one tourism office.

10. **Other projects** - CRIS has undertaken some important projects, viz., Parcel Management System for computerisation of parcel services; crew Management System to provide information regarding train crew on a real-time basis, Comprehensive Payroll Processing System, Workshop Information System, E-Procurement System to improve purchase efficiency and transparency, web-based electronic office management system.

1.2. Digital Marketing

The Institute of Direct and Digital Marketing (IDM) has provided the following characteristics as constituting the concept of digital marketing: *" the management and executive of marketing using electronic media such as the web, email, interactive TV, wireless media in conjunction with digital data about consumers characteristics and behaviour. "* Digital marketing differentiates from the other e-models of marketing in that it uses machine learning algorithms and their applications in multiple devices and platforms to virtually carve itself into an established marketing area. Applying digital data aspects that were never previously extracted or considered in formulating consumer behaviour, has made digital marketing an ecosystem in itself where advanced technologies are used to produce customised messages and promotional campaigns for the companies for their consumers.

Better audience targeting, low-cost leverage, actionable reporting, demographic-based messaging, faster fulfilment, multi-channel reach, and rapid customer contact are just a few of the reasons why digital marketing is favoured over conventional forms of advertising. In comparison to previous e-marketing models, digital marketing has flourished because it accounts for the most crucial factor: the ever-evolving nature of client engagement methods and needs. Whether in a reactive or proactive state, consumers always seek ways to address their problems, and this often involves researching available options. The customer may be interested in learning about the world at large or in just expanding his or her knowledge base. Since customers' primary activity in digital marketing is the discovery of new information, communication with such consumers is essential and strategic. The two most common types of communication are medium-initiated (push marketing) and consumer-initiated (pull marketing) (pull marketing). Together, these two elements provide the basis for the three main types of digital marketing technology: search marketing, display advertising, and social media marketing.

To adapt to the ever-evolving consumer statistics and interactive technologies, digital marketing employs a five-stage "marketing funnel" idea inside itself. The five steps include planning, communicating, interacting, acting, and maintaining. Thus, when combined with the customer funnel, the marketing funnel highlights the many value-creation areas extensively exploited by successful product or service marketers.

Thus, digital marketing can be of seven types, viz., (i) intend-based marketing (ii) brand marketing (iii) content marketing (iv) community-based marketing (v) partner marketing (vi) communication channel marketing (vii) platform-based marketing.

Applying the above seven types of digital marketing five digital marketing models can be created based on the use and the outcome targeted by a company. Enumerating the models as follows -

(i) Advertising-based revenue model - Online websites, portals, mobile sites and apps. The classic examples are Yahoo and Google.

(ii) Subscription-based revenue model - Web portals, info educational websites, premium service websites like consumer reports.org

(iii) Consumer-based revenue models - pay per content. E-commerce websites, mobile sites and apps like Amazon, Flipkart, iTunes

(iv)Transaction fee-based revenue model - Pay per referral. E-commerce websites, content Websites example My points

(v) Social collaboration-based revenue model - Pay per lead, Social media sites, portals, blogs, and messaging services like Facebook, and WhatsApp

Digital marketing's many uses and advantages include: increasing profits, raising brand awareness, facilitating the research phase of the buying cycle, facilitating faster responses to negative customer feedback, levelling the playing field for businesses of all sizes, and connecting with consumers in real-time, among other things. Intent, interactivity, immersion, timeliness, intrigue, and informational value are all crucial to the effectiveness of digital marketing.

1.2.1. Types of Digital Marketing

i. Website Marketing - Internet promotion of a personal website is referred to as "website marketing." The idea is that users will visit the major site more often than the subsidiary sites or external connections (social media platforms). Keeping the website and the material provided on it up to date and having a vision of forwardness and not stagnation is the biggest challenge in such marketing. This requires constant measurement, analysis, rinsing, and repeating.

ii. Search Engine Optimization - The most popular kind of online advertising, search engine optimization (SEO) involves enhancing a website's visibility in search

results by making structural and content changes to better suit the indexing and retrieval systems used by each individual search engine.

iii. Online Advertising and Pay-per-click Advertising – Both strategies are useful in their own ways and might be seen as extensions of each other. Pay-per-click (PPC) advertising is a technique for internet advertising in which the advertiser agrees to pay a fee to the search engine (acting as the publisher) each time one of their ads is clicked. The only reason for this is to boost visits to the primary domains.

iv. Email Marketing - Email marketing is a tried-and-true method for gaining customer loyalty, trust, and brand recognition. Marketers use this method to reach out to a large group of individuals, some of whom may already be customers and others who may become customers in the future, with a standard promotional message. Email marketing's primary goal is to strengthen the bond between the company and its customers, leading to increased brand loyalty, repeat purchases, and, in many circumstances, the spread of third-party adverts.

v. Blog Marketing - The term refers to the practice of promoting goods and services using blogs that are not connected to the main websites. Blog marketing shows its worth in the long run even though it is time-consuming and the results aren't seen for a while. It is cheap to run, easy to use, generates website traffic, improves search engine ranking, engages the market, generates more revenue opportunities, and builds credibility and trust with consumers.

vi. Interactive Marketing - In this kind of advertising, often called "trigger-based marketing," businesses create unique commercials in which consumers may participate in a two-way exchange of ideas based on their preferences. Advertisers tailor their messages to each individual based on data collected via consumer interactions (such as ratings, polls, and surveys) as well as demographic information provided by the customer. Even though there are a plethora of interactive marketing options, the most frequent kind is most often seen in the form of search engine optimization.

vii. Social Media Marketing – Section 1.3.

viii. Mobile Marketing - Marketers are putting their faith in technology to bolster their efforts given that most of the public has access to a smartphone. Text message promotions and app push notifications are the backbones of mobile marketing, which is increasingly focused on user behaviour rather than demographics. Since most current technology has privacy settings, data collecting is the primary issue with mobile advertising.

ix. Content Marketing - Quoting the classic textbook definition, Content marketing is the creation and distribution of digital marketing collateral to increase brand awareness, improving search engine rankings and generating audience interest. Businesses use content marketing to nurture leads and enable sales by using site analytics, keyword research and targeted strategy recommendations. When done well, content marketing demonstrates not just that businesses are committed to their brands and making the most of available marketing tools, but also that it helps educate consumers, cultivate leads, and boost sales.

x. Affiliate Marketing - Marketing in which an intermediary is hired by a company to promote its goods or services in exchange for payment (the commission) is called affiliate marketing. The intermediary earns a commission on every purchase made via their service, and their success may be monitored using affiliate links that they place on their websites.

xi. Influencer Marketing - There are elements of both traditional advertising and more cutting-edge, content-based strategies like celebrity endorsement. It's a partnership between the companies and the people who have power over their audiences. When compared to celebrity endorsements, influencer marketing's primary distinction is that its advocates are everyday individuals who would never dream of becoming celebrities in the real world.

xii. Viral Marketing - The idea behind this kind of advertising is that well-crafted words would spread like a virus, or "word of mouth" as it were, over the web. Viral marketing thrives in the organic setting of social media platforms.

1.2.2. Platforms of Digital Marketing

The environment of digital marketing has transformed with advancements in technology. There are now more options than ever before for businesses to achieve their advertising objectives, thanks to the proliferation of digital tools and channels. After taking into account the aforementioned variables, the following digital channels have emerged as the most effective for business advertising and marketing like, Facebook, LinkedIn, Quora, Google AdWords, Google Ecosystem, Twitter, ShareASale, WhatsApp, and Instagram.

1.3. Social Media Marketing

The "marketing of a product or service via the use of various websites and platforms associated with social media" is referred to as social media marketing. Thanks to the built-in data analytics tools of social media platforms, advertisers can track the success of the campaigns they run on such platforms. Through the use of social media marketing, companies can communicate with a diverse group of individuals, including existing and prospective clients, current and former employees, journalists, bloggers, and the general public. Despite the continued predominance of e-marketing and digital marketing research, social media marketing is gaining popularity not just among business professionals but also among academics. Managing the marketing, regulation, defining the scope (such as whether more proactive or passive use is desired), and building a company's intended "culture" and "tone" are all part of the strategic planning that goes into social media marketing.

In this regard, social media may be seen as the contemporary equivalent of word of mouth in terms of its ability to spread information quickly and cheaply from person to person. With the help of social media, users may easily connect with others who have similar interests and perspectives, forming a tight-knit online community where opinion leaders can exert their influence. Included in this category are online communities such as those found on social media networks, social bookmarking sites, blogs, and microblogs. In other terms, social media may be compared to a sport or activity in which participants take part in both ends of a conversation. To make a splash in the realm of social media, one must engage in both content consumption and production. That which one publishes online (production) is read by others (consumption) and vice versa is true of the most popular social media platforms. As a result, businesses may learn more about their customers' wants, expectations, problems, and unmet product requirements thanks to the interactive nature of social media compared to more conventional forms of advertising.

Features such as discussion boards, instant messaging, email, media sharing, etc., that formerly existed as separate websites or applications are now all available under a unified social networking platform. Dial-up Internet access paved the way for the development of online discussion forums, bulletin boards, and chat rooms; these

innovations sparked the rise of virtual communities. Now that there are many different kinds of social media, we may categorise them as-

(i) Social networking sites viz., Facebook, MySpace, LinkedIn

(ii) Blogging websites like, Microsoft Stories, Fubiz, Goodwill Industries International

(iii) Microblogging site, primarily Twitter, Tumblr, Pinterest

(iv) Social bookmarking sites like Digg, StumbleUpon etc.

(v) Media sharing websites viz., YouTube and Flickr

(vi) Virtual communities like SecondLife, Instagram

(vii) Social review sites such as Yelp, Amazon online reviews, Glassdoor

(viii) Topic-specific websites like business websites, educational websites, and membership websites.

Young people find it quite relieving to use social media sites like Facebook and Twitter to keep in touch with friends and family members without having to deal with the hassle of actually being in the same room as them. People who want to have virtual conversations, professionals who want to broaden their network, singles who want to meet new people, students seeking study partners, and those trying to reconnect with long-lost friends are among social media's most frequent users. As more and more people fall under the umbrella term "millennial," it is becoming more important to tailor your marketing efforts toward this demographic.

In reality, Facebook has more users than any other social network combined (second only to Google), but when targeting is implemented, it becomes distracting for users since it requires knowledge of the users' mental states over time rather than just their location and behaviour at a given moment. Even while the users feel a strong feeling of connection and belonging, not everyone in the group is supposed to be there. Facebook is the greatest form of a wide audience, allowing for mass placement at the lowest possible cost and in the least amount of time, even though the marketers may have missed the point.

Twitter's microblogging feature, in which users are restricted to 140 characters per post, is distinct from more established social media platforms in that it is only used for broadcasting information to the general public. Businesses utilise microblogs for what may be considered a more formalised form of public message transmission, while the

general public uses them for the expressing of personal opinions and the sharing of personal information.

More than half of the world's population, from preteens to seniors, is now active on at least one social networking site. It has been shown that the more active a customer is with a product, the more good word-of-mouth he or she makes, therefore marketers benefit by having a varied audience and engaging in conversation with them. Because, in the end, social media is just a virtual word-of-mouth service that costs less money for advertisers to utilise. This is why smaller competitors in specific areas can unseat the industry giants in digital advertising. Social media allows these marketers to be in constant contact with their target audience, allowing them to spot and respond to shifts in consumer preferences much more quickly than they would be able to if they relied solely on the methods of advertising employed by larger corporations that tend to put more emphasis on tried-and-true methods. Mentioning anything on social media will generate interest and excitement among online communities. The true outcome of this "virtual word of mouth" done on social media platforms is increased traffic to the parent website and the associated links.

A company may begin developing a social media marketing plan by becoming an active member of an online community that its products or services are relevant to or would appeal to. It begins by making profiles for its company and its goods on all of the main social media platforms, complete with information about the company and its products and a description of its vision for the future. Since social media platforms encourage two-way communication, companies need to keep an eye on what is being said about them not just by current and future customers, but also by competitors. Adding connections to other social media sites in their social media postings helps build trust and credibility.

1.3.1. Social Media In Public Services

The Indian government was slow to embrace social media, but it has already caught up thanks to the country's rapidly expanding population and booming economy. The Prime Minister's Office (PMO's) Twitter account has the most followers, and it is increasingly being utilised for political and policy discussions. There are also frequent updates to information on significant laws, legislation, remarks from the PM, news releases, updates on official trips, and images. Government agencies see the current

technological shift as a wonderful chance to strengthen their connections with the public. As a result, social media has provided a venue for citizens to work together toward a common goal. Involvement from the public reveals how people in the community feel about the government and how they feel about specific policies.

As a result, public services are increasingly utilising social media as a tool of disclosure and convergence of information, allowing for the rapid dissemination of information from the centre to the citizens as well as the transmission of citizen complaints to the government, allowing for more nuanced policymaking at the local level. The use of social media has been revolutionary in several fields, including disaster relief efforts, citizen participation, and local government openness. With Digital India's brightest future in sight, the government has to do a good job of promoting its many services so that it can boost the economy and improve its relationships with the people who elect them.

Government employees that utilise social media run into issues including phishing, account duplication, and impersonation. This highlights the necessity for a social media framework and norms for government organisations utilising social media for communicating with people, as well as the need of providing enough training for government workers so that they know what to post and what not to post. They need to be trained to distinguish between the beliefs and motivations of the organisation and their thoughts. When it comes to social media, the Indian government has established certain rules along the lines of objectives, platforms, governance, communication strategy, pilot programme development, stakeholder involvement, and institutionalisation. The protection of "individual rights and nation's integrity, sovereignty, and security" will be enhanced by the adoption of such a framework. In the end, a better, more streamlined, unified, and well-networked government is the goal of all public service organisations, and their social media presence is one approach to encouraging more civic participation.

1.4. Customer Engagement

Customer Engagement as a concept is multidimensional and has various aspects dealing with business and communications. When considered Ain a simpler form of customer engagement is nothing but a two-way interaction between a business and its consumers. As per a study by Economist Intelligence Unit, "engagement refers to the creation

of experiences that allow companies to build deeper, more meaningful and sustainable interactions between the company and its customers or external stakeholders". Forrester Consulting's research, defined customer engagement as "creating deep connections with customers that drive purchase decisions, interaction, and participation, overvtime". Of the many authors who have described customer engagement some of the most notable ones are enlisted in Table 1.1.

Table 1.1: Existing definitions of Customer Engagement

AUTHORS	DEFINITION OF CUSTOMER ENGAGEMENT
Hollebeek (2011)	" Consumers' proactive contributions in co-creating their personalized experiences and perceived value with organizations through active, explicit, and ongoing dialogue and interactions "
Vivek et al. (2012)	" The intensity of an individual's participation and connection with the organisation's offering and activities initiated by either the customer or the organisation. "
Patterson et al. (2006)	" The level of a customer's physical, cognitive and emotional presence in their relationship with a service organisation. "
Brodie et al. (2011)	" A motivational state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g. a brand) in focal service relationships. "
Bowden (2009)	" A psychological process that models the underlying mechanisms by which customer loyalty forms for new customers of a service brand, as well as the mechanisms by which loyalty may be maintained for repeat purchase customers of a service brand. "

While the five definitions above take somewhat different approaches to the notion of customer engagement, they all share a core belief that customer engagement is a mutually beneficial exchange between a business and its customers. Customers are considered engaged when they make contact with a company and, despite facing challenges, keep purchasing the company's service whereas, recent research focuses more on the psychological aspect of customer engagement.

Businesses often see customer engagement as an indicator of their ability to go beyond the role of supplier and become a trusted partner to their customers. They see customer engagement as an opportunity to cultivate lasting connections with patrons. This will benefit the company in terms of growth, expansion, client retention, and revenue. It will also help save money and reduce barriers to entry for target markets.

Academics generally agree that firms may do more to encourage customer loyalty by providing a forum where customers can talk to both the company and other customers. The fact is that customers choose whether or not to interact with a company, and not the other way around. For marketers, this is the single most important contact point that prompts an emotional response to products.

Companies have historically prioritised product and service enhancements to foster positive customer relationships; but, with the introduction of internet marketing, these efforts are no longer wholly fruitless. The Internet has made it harder for companies to differentiate themselves from the crowd of competitors since there are so many of them. It's already hard enough for firms to keep up with what customers want without them displaying their physical characteristics. The smart move would be for a business to stop keeping track of the number of times a customer makes a purchase and instead focus on forging a personal relationship with each customer. One that would leave an indelible impression on customers' minds every time they thought about the company's offerings. In most cases, customer engagement starts with a response to or trigger of emotion, and this reaction might be anything at all. When customers make an effort to get in touch with a business, it shows that they are receptive to two-way communication since it makes them feel valued and in charge of their purchasing decisions, and it offers the business an advantage by fostering a closer bond with the customer base.

Customer engagement used to be seen just as a means to increase profits in the old school of marketing, but in the modern day, it is seen as "a path to key corporate goals" rather than merely a means to increase profits (Solomon, 2015). It helps people become more familiar with the brand, more loyal to the brand, and more satisfied with the brand, as well as gives the business information about the level of consumer engagement and how it may be leveraged to meet business goals. The real reactive and proactive answers made by customers are the issues since they are entirely dependent on the consumers and are out of the firms' control.

1.4.1. Customer Engagement and Social Media

Even when businesses experimented with other advertising strategies and methods of boosting and measuring customer engagement, social media platforms proved to be a formidable opponent. The advent of social media was a game-changer in terms of customer engagement since it simplified advertising for businesses, expanded their access to wider groups of prospective consumers, and made gauging customer engagement much simpler. Because of this, businesses can now more easily and efficiently run their marketing initiatives.

The cost-effectiveness and significance of the analysis of the data acquired have made gauging client involvement along the lines of social media more important, especially in light of the time constraints involved. This has made it much simpler for businesses to separate their most valued customers from the rest of their clientele. According to research conducted by McKinsey & Company in 2014, digital customer engagement is widely regarded as a top strategic objective by Chief-level executives (play the strategic role of making company-wide decisions). Companies are drawn to social media activities because of the platform's immense user base as a potent tool for producing significant and long-term consumer interaction. This vast scope of consumer reach presents businesses with a wealth of possibilities for enhancing customer interaction activities if it is used effectively. Subscribers, likes, shares, comments, blog entries, etc. are all examples of customer engagement in social media.

To get customer engagement on social media, a firm must first get them to visit its website. It stresses the importance of corporations attracting more visitors to their websites and working to keep them there for longer. To do so, businesses have begun including more creative and engaging features on their websites. Inviting individuals to take part in surveys, competitions, free subscriptions, and following on social media is one strategy among several. This means that businesses need to continually update their websites and social media with content that is tailored to individual customers' tastes and interests. Because of this, electronic-word-of-mouth (e-WOM) is generated, which is a good indicator of customer engagement and has become the new "it" element in social media marketing.

With the use of e-WOM, businesses may address both positive and negative customer feedback. In the event of unfavourable feedback, the firm may quickly and easily reach

out to the offended customer via the established channel and rectify the situation. As a result, the organisation can develop meaningful connections with its customers, which in turn facilitates the delivery of highly targeted and relevant communications. Because of modern algorithms, shops may even advertise things clients have recently looked for on other social networking sites.

1.4.2. Measuring Customer Engagement

Five separate characteristics of identification, excitement, attention, absorption, and engagement are suggested to capture both the mental and physical embodiments of customer engagement. Following this line of reasoning, we might say that customer engagement occurs when a consumer's feelings about a brand translate into positive thoughts and activities about that brand outside of the context of making a purchase. Behavioural manifestations include things like customer-to-customer interactions, weblogs, review posting, and similar forms of engagement with the business.

One school of thought holds that the concept of "customer engagement" is a "second-order construct," in which the sum of the five parts is greater than the whole. The concept of customer engagement is a more all-encompassing abstraction since it takes into account the interrelation of these five factors. Recent conceptual and relational evaluations of customer engagement give helpful direction on the causes and effects of customer engagement. Involvement, interactivity, rapport (with current clients), commitment (with current clients), trust, attachment to the brand, and satisfaction with the brand's performance are all potential measurements of customer engagement consequences of customer engagement include cocreated value, a positive brand experience, customer delight, trust, loyalty, customers satisfaction, brand loyalty, repeat purchases, positive brand perception, brand recognition, and financial gains. Furthermore, age, computer expertise, and degree of socialisation are all variables that may affect the strength of such a psychological link (Funk & James, 2001).

The nature of the measuring construct must be taken into account when attempting to quantify the notion of customer engagement (i.e., reflective vs. formative). The problem of causality has an impact on the field of measurement theory. Different from the formative model's presumption that it is the indicators that create the construct, the reflecting model holds that the latent component is the cause of the indicators.

Therefore, a reflective model of customer engagement was proposed, in which the concept of customer engagement is thought to cause its specific dimensions,including identification, enthusiasm, attention, absorption, and interaction, in the same way, that other social science constructs, such as attitudes, personality, and behavioural intention do. In the world of marketing, "involvement" often relates to how important or relevant a product or brand is to the consumer. However, mental effort alone isn't enough to sustain interest. A customer's interaction with a central brand is necessary for the development of a certain customer engagement level. Because of these distinctions, the multifaceted idea of customer engagement may be considered independent of engagement thus, resulting in a second-order construct for measuring customer engagement.

As a consequence of this, it is predicted that the five recommended dimensions would covariate with one another. This implies that modifications in one will lead to comparable adjustments in the other four. For instance, if customers are invested in the brand, it's more likely that they will engage online discussions about the brand and attract more attention to it.

1.4.3. Conceptual Definitions of the Study

Customer engagement is one of the pillars of applied marketing; nonetheless, it has spawned a wealth of literature, and as a result, some common vocabulary has grown into a lexicon for it. A few of the defined vocabulary have developed through time, which is also relevant to brush over the topic for the aim of the current study in a more substantial way.

Customer Engagement - Customer engagement is a multifaceted term with many different elements dealing with business and communications. Customer engagement, in its most basic form, is nothing more than a two-way relationship between a company and its customers. According to an Economist Intelligence Unit research, "engagement refers to the creation of experiences that allow companies to build deeper, more meaningful and sustainable interactions between the company and its customers or external stakeholders". Forrester Consulting's research defined customer engagement as "creating deep connections with customers that drive purchase decisions, interaction, and participation, over time".

Effects of Customer Engagement on social media platforms - Customer participation in brand creation and consumer-produced advertising results from customer engagement on social media platforms. Customers that interact with their favourite brands and organisations on social media platforms express their wants and make recommendations to the organisation on how to better their products/services. These customers also take an active role in resolving any issues they may have with the product/service. The repercussions of customer engagement (CE) may be separated into two categories: implications for customers and consequences for the local company. Customers' repercussions are attitudinal, behavioural, and cognitive in character. It is commonly considered that effective customer engagement behaviour leads to even greater and more frequent engagement, as well as a further extension of customer engagement behaviour (Van Doorn et. al., 2010). According to Kietzmann et al. (2011), in their research, customers who are satisfied with some businesses often create content online to promote their business; customers who engage in addressing their concerns relating to the organisation or brand generate content to create awareness about the organisation or brand and recommend their product/services to others on social media.

Antecedents of Customer Engagement - Antecedents that are customer-focused reflect customers' emotional states; goals, traits, and resources; and have primarily consequential effects on customers, while antecedents that are firm-focused have primarily consequential effects on the firm like advertising effectiveness, higher sales and idea generation. Circumstances that neither the organisation nor the customer can control are additional antecedents impacting customer engagement. As a rule, they are the end product of some kind of contest or function.

Government/Public Services – A public service is a service that is supplied by the government to individuals who live within its territory. This may be done either directly (via the public sector) or indirectly (by funding the private supply of services) and falls under one of two categories.

Social media Platforms – The term "social media platform" refers to a mode of online communication, such as but not limited to, websites for social networking and microblogging, that enables users to build online communities in which they may exchange information, ideas, personal messages, and other forms of material.

Consumer – "Consumption is the sole end and purpose of all production; and the interest of the producer ought to be attended to, only so far as it may be necessary for promoting that of the consumer. " (Adam Smith, 1723-1790).

Customer - "A customer is an individual or business that purchases another company's goods or services. Customers are important because they drive revenues; without them, businesses cannot continue to exist." (Kenton et al., 2021)

Passenger – "A passenger is a person who travels in a vehicle, but does not bear any responsibility for the tasks required for that vehicle to arrive at its destination or otherwise operate the vehicle, and is not a steward. The vehicles may be bicycles, buses, passenger trains, airliners, ships, ferryboats, and other methods of transportation." (Black's Law Dictionary, 2023)

Exposure - It pertains to the incorporation of different sources of information or media into the conceptual range of present or future customers or consumers (Kumar & Patra, 2017). As a result, exposure is the somatic condition caused by being exposed to factors in which the mind interacts actively or passively with the source of information.

Awareness - The term "awareness" refers to the state of being cognizant. Our awareness manifests itself in our selected choice and concern for decision-making. Typically, awareness is indicated in terms of knowledge and preference for distinct features of a certain product or multiple brands of the same product (Kumar & Gogoi, 2009). The level of a company's presence in customers' minds is referred to as brand awareness. Brand equity relies heavily on brand awareness (Keller, 1993). He also stated many stages of brand awareness, spanning from ordinary brand recognition to domination, which refers to the situation in which the brand in question is the sole brand recalled by a customer.

Relevance – "Relevance is the full experience of a product, brand, or cause that we can relate to; it's an experience that not only changes minds but, importantly, changes behaviour–and sustains that change" (Kumar & Gogoi, 2009).

Self-identity – "Self-identity refers to a person's self-conception, self-referent cognitions, or self-definition that people apply to themselves as a consequence of the

structural role positions he or she occupies or a particular behaviour he or she engages in regularly. Self-identities reflect the labels people use to describe themselves" (Biddle, Bank, and Slavings 1987, p. 326).

Rapport – "Rapport is a characteristic of a relationship if the parties engage in a high degree of attention, show a high degree of empathy and share a set of common expectations." (Coan Jr, G. (1984).

Brand personality – "Brand personality refers to a set of characteristics or qualities similar to those of human beings that become associated with a brand. In other words, when a brand is expressed in terms of human traits and characteristics, it is known as brand personality. It could relate to age, gender, socio-economic status, psychographics, emotional, and socio-graphic characteristics" (Kumar & Gogoi, 2009).

Motivational alliance - A motivating alliance is the early stages of a commercial relationship between two or more customers that results in the realisation of objectives that neither could have achieved alone. Until the alliance is dissolved, each member of the Motivational Alliance maintains its individuality, participates in its administration, and reaps the benefits of the alliance as a whole.

Customer-friendly behaviour - Customer behaviour entails "all activities associated with the purchase, use and disposal of goods and services, including the consumer's emotional, mental and behavioural responses that precede or follow these activities." (Wright et. al., 2013). Customer responses include emotional, mental or behavioural i.e., affective, cognitive and conative responses respectively. Customer-friendly behaviour elucidates as one of the conative aspects of customer response as a result of customer behaviour

Attitude – "From the marketing perspective, attitude can be defined as the set of beliefs and emotions a consumer holds for a particular brand/product/service which determines the perception of that consumer towards the former" (Kumar & Gogoi, 2009).

Dearness & Bonding – It can be explained as the process through which an organisation makes connections with its customers to develop a relationship with them

so they continue patronizing and recommending the company products/services to their friends and family.

Brand co-creation – "Co-creation, in the context of a business, refers to a product or service design process in which input from consumers plays a central role from beginning to end." (Lopera-Molano, 2020).

Accommodative response – "A management strategy in which a company responds to criticism of its social or environmental record by accepting responsibility and seeking to improve its practices" (Kumar & Gogoi, 2009).

1.4.4. Theoretical Framework

Figure 1.2 shows the theoretical framework of the study. The parameters included in the framework are described as follows.

Figure 1.2: Theoretical Framework of the study

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                    ┌──────────────────┐
                    │    CUSTOMER      │
                    │   ENGAGEMENT     │
                    └──────────────────┘
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| IDENTIFICATION | ENTHUSIAM | ATTENTION | ABSORPTION | INTERACTION |
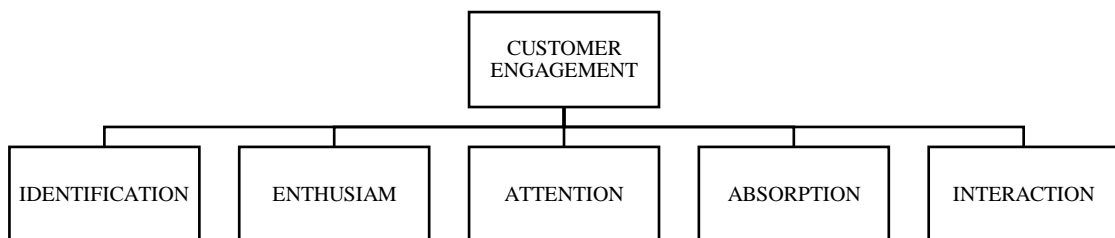
Identification - Identification is based on the social identity theory that says one's identity is made up of two parts: one's own and one's group's. People create a sense of self and their place in the world by belonging to distinct groups. When it comes to consumer electronics, interaction is crucial since it's the means through which consumers engage with the product, and it's also useful because it involves the expression of consumer sentiment toward the brand. Fans of a certain brand need a central forum where they can voice their devotion to that brand. Unfortunately, this medium is plagued by major issues related to both time and space. However, the advent of social media has deregulated customer engagement, allowing active consumers more freedom to voice their opinions on goods and services across several platforms by posting, reviewing, blogging, and sharing visual content (photos, videos).

Enthusiasm - When a consumer has a favourable impression of a product or service they are more likely to investigate it more, which in turn encourages further interaction, which in turn develops enthusiasm. One of the emotional connections consumers have with a brand is enthusiasm, which is defined as a "high degree of excitement" for the designated company or product. Exuberance for a brand is what drives customers to become active members of fan networks and/or vocal brand advocates. Even though there is some debate in the academic literature as to whether or not enthusiasm and passion are separate, both are generally acknowledged as being crucial components of the emotional component of customer engagement.

Attention - Researchers agree that paying attention is a crucial aspect of customer engagement. As such, attention is a scarce resource that may be divided into many different ways. People who are highly involved often focus on the concept of engagement, whether they are aware of it or not. The necessity of paying close attention is further emphasised by the fact that a high level of personal involvement is associated with a sense of being linked to, integrated with, and focused on one's performance. Backed by marketing theory, is the idea that paying attention is crucial to keeping customers interested and engaged. For instance, in regulatory engagement theory, engagement is defined as sustained attention, whereas disengagement is achieved by intentional behavioural distraction. To sum up, the concept of conscious participation, which stands for a consumer's degree of attention toward a brand, is consistent with the idea of engagement, which is synonymous with focused attention. Customer interest in a brand leads to an increased interest in brand-related content.

Absorption - Absorption is an extension of the concept of flow theory, which describes the engrossment one feels while doing an activity one finds intrinsically rewarding. Absorption, in the setting of customer engagement, refers to a state in which the consumer is engrossed in, enthusiastic about, and committed to the brand. As a characteristic of client interaction, absorption has not been formally quantified, and there is no consensus among academics on how to do so. Dessart et al. (2016) regarded absorption as part of the cognitive dimension of consumer engagement, but Cheung et al. (2011) and Dwivedi (2015) classified it as a separate dimension. Researchers in the area of marketing have also stated that engaging with something

involves more than just paying attention; it also involves getting fascinated or immersed in it. If a customer can connect with the brand or other customers in such a way that they get involved in the experience, the interaction is successful. According to studies of customer engagement, highly engaged clients show complete absorption in their work, whether it involves interacting with the company's products or with other clients.

Interaction - The notion of customer engagement relies heavily on the wo-way flow of information between the company and its consumers, which includes the sharing of thoughts, sentiments, and other forms of interaction. For instance, some academics stress the importance of consumers' involvement with the firm or other customers in exchange for information, while others encourage customer engagement shown by behaviours like customer contacts. The literature on organisational behaviour further highlights the significance of engagement's behavioural components by seeing customer engagement acts as adaptive rather than mandatory, and as a result, causing workers to go above and beyond just maintaining the status quo. An analogous idea applies to customer engagement activities, in which consumers do more than just consume a product or service. The more involved the activity, the more likely it is that a customer will take part in it. That's why interaction is so important to customer engagement; it's the outward embodiment of a customer's emotional connection to the company beyond their transactional behaviour.

1.4.5. Customer Engagement Examples Of Indian Railways

Given the nature of services provided by the Indian Railways, customer engagement is seen through - the traffic flow on their website and social media platforms along with the likes, shares, and comments their posts get; and the real-life actions that it takes as response to the complaints received. Some other activities such as being the first ones to share some crucial news with the general public and coming up with innovative activities to keep the consumers within their grasp i.e., to have active customer engagement. Some of the success stories of the above-mentioned factors are as follows:

- A train was halted for a longer duration when a special needs passenger had to be provided with wheelchair assistance at the platform.

- The Indian Railways provided protection to a female passenger who was facing harassment on the train and tweeted about it.

- Starting the #MyTrainStory campaign in the form of pictures, write-ups and videos, in a bid for emotional bonding with the citizens of the country, which turned out to be a huge success for the public.
- Live tweeting of rail Budget with the #RailBudget as the tagline, which went on to become one the top ten Indian Twitter trends.
- Call for ideas initiative on Twitter for issues such as station and train cleanliness, waste management; innovation challenges for "design of wagons for efficient loading and transportation of new traffic commodities", "easy accessibility to trains from low-level platforms", "increasing passenger carrying capacity of coaches of Indian Railways", and "identifying new non-fare revenue sources for Indian Railways"; saw a flood of suggestions from the general public.
- Using social media platforms such as Facebook and YouTube for disseminating safety-related messages such as risks involved in railway level crossings amongst many.
- A man got back his phone which he left at Jaipur station when he reached Delhi after he tweeted about it.
- After an elderly faced problem with getting milk, he was provided with the same by the officials after the elderly's son tweeted about it.
- Starting the initiative of doing 30 squats for a platform ticket in a bid to make Indian citizens aware of Fit India movement called by the government.
- Sending a wake-up call to passengers who are to travel in the wee hours of the morning.
- Using Twitter to give regular updates on train schedules and information regarding the cancellation of tickets n the time of the pandemic and providing the procedure for passengers to get their refund or to reschedule their journey.

1.5. Overall view of the problem

At the moment, research is being conducted on the intrinsic utility, i.e., the direct impact of content posting on social media platforms and image-related impact, as determined by consumers or competitors. Data mining was previously uncharted territory for Indian Railways, but with the sheer volume of data collected per day, categorizing it and determining the effect factor of each post based on such data has become a need. Formerly, government agencies, particularly Indian Railways, used social media platforms for information dissemination; however, with the increased use of social

media platforms by private players, Indian Railways have changed their strategy and begun using social media platforms for sales volume generation and customer engagement.

1.6. Need of the Study

The big data generated and collected from consumers narrate a bigger picture in an ever-changing virtual scenario. It now depends on how much volume, variety, velocity and veracity of data are being utilised for maximum effect by marketers in their marketing narrative. This is where data mining plays its role. But in the current social media scenario, in India, data is out there which are yet to be classified and understood. Key areas such as persona development for better tracking of consumers along their buying steps; web retargeting based on the consumers' web visit and cookie data; understanding and measuring customer engagement as well as disengagement to figure out patterns for existing as well as new consumers for product/services etc.; development of parameters for accurate prospect conversion; and better-paid campaign analysis for a better investment, are some of the areas where social media marketing can be honed into. All of the above discussion burns down to better monitoring of customer engagement. In the current scenario of highly competitive, communicative along with the highly cynic mindset of the consumers, organisations and marketers are now banking on having a better-engaged customer for effective results.

Social media marketing is used by various Indian Ministries as a medium for transitional communication with the general public. Not only government agencies and ministries are using social media platforms as a form of persuasive marketing, but are also, in turn, categorising the huge data collected for understanding citizens - needs and exceptions, unearthing citizen involvement drivers, ways to retain consumers, ways to increase revenue generation opportunities, creating brand loyalty and brand perception among the citizens and lastly capitalising on the catalyst i.e., word-of-mouth, amongst existing customers for cost free marketing.

1.7. Significance of the Study

India is now in a period of transition. With the new government in place and the transfer of leadership, change is a powerful force in the country. As a result, the public has an increasing feeling of expectation from the government and government institutions. Citizens demand quick service delivery with a high degree of execution, and the

government is responsible for achieving this. Citizens desire to communicate with government agencies in the same manner that they interact with their mobile phone service providers, insurance companies, and e-commerce platforms. They want to be able to access the information they seek at any moment, handle several issues on their own, or know somebody will be available to answer their questions, whether by live chat or phone.

Citizens want to know them, to grasp what they're trying to achieve and where they're going. They need to be able to raise concerns or offer ideas, whether to a contact centre representative or through social media, and they want a rapid response and a plan of action. Customer engagement enhancements, such as providing a comprehensive online presence so customers can quickly seek solutions or incorporating backend systems so officials have all the data they need on a single screen to most efficiently and successfully serve customers, have been implemented to not only enhance the customer service experience but also to keep their government loyal. In government services, active individuals can enhance the general health of communities and cities, raise awareness, and perhaps provide a better standard of living for everybody. And, if governments and public sector enterprises continue to invest in the proper customer engagement infrastructure and products, they may soon equal private-sector quality of service. Hence, this study of customer engagement in this respect is highly important.

1.8. Limitations of the Study

The findings of this study, for instance, cannot be extrapolated beyond the scope of the sample because the research was conducted inside a single country, with just three zones limited to a certain geographical region, and with the sample being considered as per the reach of the researcher. The customer engagement scale and model should be validated in subsequent research utilising random samples from around the country, each of which represents a different Indian Railway Zone. A second, related argument is that India, in and of itself, is very huge and diverse, both in terms of accessibility and, more generally, in terms of the distinctions that exist across the states and regions. The sample size is not large enough for this fine-grained intra-national examination, as was highlighted in the discussion of the study results. Although the sample is broadly representative of India's population in a broad sense, but not the population of India as a whole is not. Finally, we researched the social media accounts of Indian Railways that

had the most followers on the most prominent platforms. In the course of future study, it would be beneficial to evaluate the scale and model of not only the other Indian Railway zones but also the country as a whole as well as consider the different upcoming social media platforms.

2. REVIEW OF LITERATURE

2.1. Review of Literature

The purpose of a literature review is to identify the gaps in the existing literature that the researcher plans to fill in their investigation. The purpose of the literature review is to familiarise the researcher with the relevant theories and prior research. The researcher may get a sense of the scope of prior work in the field, the kind of questions that have been addressed, the methods that have been used to evaluate data, and other relevant background information by doing a literature review. It also aids the researcher in identifying the areas of study that have not yet been explored. As the present study is intended to find the factors that determine customer engagement on the social media handles of Indian Railways, a thorough literature review was done to find such factors in academic, marketing and service context.

Figure 2.1: Division of Literature Review of the Study

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                    ┌─────────────────┐
                    │    CUSTOMER      │
                    │   ENGAGEMENT     │
                    └─────────────────┘
        ┌──────────────┬───────┴──────────┬──────────────┐
┌──────────────┐ ┌──────────┐ ┌───────────────┐ ┌──────────────┐
│Factors/       │ │Academic  │ │Marketing and  │ │Social Media  │
│dimensions     │ │Context   │ │Service Context│ │              │
└──────────────┘ └──────────┘ └───────────────┘ └──────────────┘
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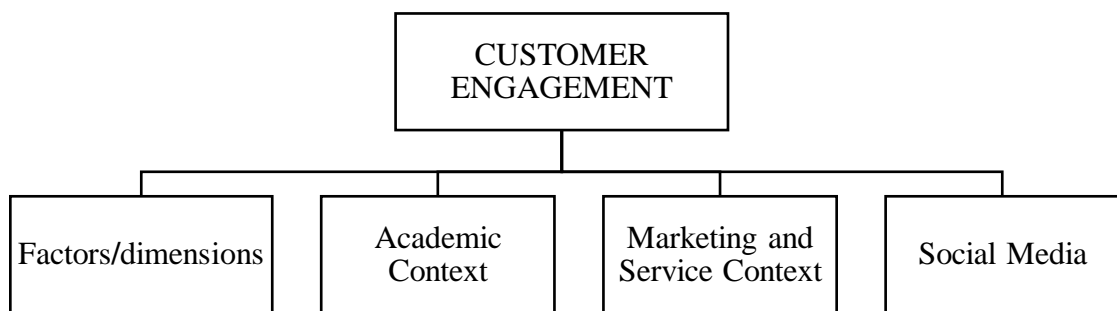
2.1.1. Factors/dimensions of Customer Engagement

Relationship building that extends beyond a single purchase is what meant by "customer engagement." It's a strategy that aims to increase customers' trust by consistently satisfying customers. Table 2.1 enlists the articles which talked about factors of Customer Engagement with a focus on different aspects. In the digital realm, customers interact with businesses, brands, and one another in ways that would be unthinkable in the brick-and-mortar world. Online interactive media like forums and blogs provide users more freedom of expression than their offline counterparts. Internet use skyrocketed in the late 1990s, and since then, advances in broadband speed, connectivity, and social media have made online consumer engagement the norm. These factors motivate consumers to join discussion boards devoted to various types of products and consumer topics. This procedure causes the consumer to get enthusiastic

about the company or service, and to act in ways that are indicative of different degrees of enthusiasm.

Table 2.1: Summary of factors of Customer Engagement in extant research and their focus areas (Year-wise).

AUTHORS	TYPE OF PAPER	CONSTRUCT	PURPOSE OF THE STUDY
Vivek et al., 2012	Empirical	Customer Engagement	Cognitive, emotional, behavioural and social element as consequences; participation and involvement as antecedents
Hollebeek, 2014	Empirical		Consumer involvement, self-brand connection, brand usage intent
Maslowska et al., 2016	Conceptual		Brand dialogue behaviour
Hollebeek et al., 2016	Conceptual		Strategic drivers, anticipated and unanticipated outcomes
Grewal et al., 2017	Conceptual		Effects of emotional engagement
Chiang et al., 2017	Empirical		Consequences of engagement in social media setting
Heinonen, 2017	Conceptual		Positive and negative valence, behavioural, emotional and cognitive factors
Bowden et al., 2017	Conceptual	Customer Brand Engagement	Positive and negative valence with respect to a focal brand
Naumann et al., 2017	Conceptual	Customer Engagement	Positive, negative and disengaged aspects of engagement through affective, cognitive and behavioural dimensions

Pansari and Kumar, 2017	Conceptual		Trust, commitment, satisfaction and emotional consequences
Roy et al., 2018	Empirical		Cognitive and effective trust for value-in-use understanding among consumers
Wu et al., 2018	Empirical		e-WOM in online brand community
Fehrer et al., 2018	Empirical		Drivers of customer engagement in a utilitarian service setting
Chen et al., 2018	Empirical		Customer rapport, mediation effects of service innovation
Ahn and Back, 2018	Empirical	Customer Brand Engagement	Cognitive and behavioural engagement
Moliner et al., 2018	Empirical		Customer advocacy due to technological advances
Li et al., 2018	Conceptual	Actor Engagement	Psychological dispositions triggered due to engagement
Sashi et al., 2019	Empirical	Customer Engagement	Customer advocacy
Itani et al., 2019	Empirical		Customer value consciousness, customer perceived value
Hollebeek et al., 2019	Conceptual		Customer co-creation, customer knowledge sharing/learning
Chen et al., 2019	Conceptual	Customer Brand Engagement	Consumer co-innovation
Naumann et al., 2020	Empirical	Customer Engagement	Negative driver of customer engagement through WOM
Yen et al., 2020	Empirical		Customer value co-creation

Clark et al., 2020	Conceptual		Positive or negative effects of customer engagement based on multi-level typological method

Vivek et al. (2012) defined customer engagement as the degree to which a person is involved in and connected to an organization's offerings and/or organisational activities, regardless of who takes the first initiative. Present and prospective consumer engagement and participation served as antecedents of customer engagement in the authors' suggested customer engagement model, with value, trust, emotional commitment, word of mouth, loyalty, and brand community involvement as possible factors.

Although customer engagement has been extensively studied in academic and practitioner literature, Maslowska et al. (2016) note that there is no consensus on its meaning, what constitutes "engagement," or the causes and consequences of it. Therefore, it was recommended that we stop using the word "engagement" and start calling these situations by their proper names. Too many different things may be meant by the word "customer engagement," despite the fact that it is altering the dynamics that have traditionally guided marketing choices.

Hollebeek et. al., (2016), investigated the various strategic drivers of customer engagement as well as the anticipate and unanticipated results of customer engagement. Conceptualising customer engagement further the research themselves have done it on offline as well as online basis. The researchers upon compiling their research aspects have enumerated the dimensions of customer engagement on two fronts viz., customer and the firm. According to them customer engagement is a resultant of operational engagement with specific engagement the firms, content elaboration using user generated content, regulatory fit for consumer brand engagement, brand dialogue utilising the brand related goal relevance and interactivity, personality traits of the consumers, social media metrics for analysing the already existing customer engagement activities and lastly, consumer involvement, consumer participation and self-expressive brand exert differential effects on the consumer brand engagement.

Grewal et al. (2017) demonstrate how businesses and academics have come to acknowledge the importance of cultivating an engaged customer base despite a lack of

expertise in doing so. In their article, they suggested that customers would have a better overall experience if they patronised businesses that used awareness as a guiding principle. With the rapid growth and development of social network services, companies have increased their spending on social media advertising, as reported by Chiang et al. (2017). In recent years, social media advertising has attracted the attention of both advertisers and internet users. However, few research have examined social media marketing from the perspective of customer engagement and have instead only analysed visit outcomes.

The purpose of Heinonen's (2017) paper was to outline the various factors that affect customer engagement, both favourably and negatively, and to provide theoretical and managerial implications for these factors. This study theorised components that encouraged consumer participation based on their characteristics and the nature of their influence. The purpose of the Bowden et al(2017)''s study was to learn about the participants' relationships with the brand and the online brand community, as well as how the two factors interact with one another. The valence, repercussions, and directionality of interactions were coded for and then interpreted using later frameworks. The research showed that consumers both positively and negatively valanced their demonstrations of involvement with a focal brand and the online brand community.

Research on customer engagement, as shown by Naumann et al. (2017), has focused on the positives while ignoring the negative effects. To address this gap, this research aimed to examine the dynamics between engaged, disengaged, and dissatisfied participants in the social service sector. With this method, they were able to specify the object of each valence, which was either the service community or the primary service organisation, and show the elements of positive customer engagement. Pansari and Kumar (2017), stressed the necessity for, and creation of, a framework for customer engagement in their research by reviewing marketing literature and analysing popular news tales. By looking back at how businesses have handled their clients in the past, researchers were able to construct the theory of engagement, which states that people are more invested in their relationships when they feel emotionally connected. As a result, customer engagement made both direct and indirect contributions to the various components of connection with consumers.

A variety of customer engagement behaviours were studied by Roy et al. (2018). The relationship between service fairness, trust, value-in-use, and customer engagement was also investigated. It was believed that fostering fairness would increase customers' confidence in the company providing the service. In a collectivist culture, managers of a service organisation would additionally stress honesty and dependability as they tended to stimulate customers to engage in meaningful connections with the corporation, which in turn influenced value co-creation.

Wu et al. (2018) identified the effect that customers' engagement in a company's social media marketing platform online brand community may have on word-of-mouth behaviour as an open research issue and a significant business problem in the realm of e-commerce. The article by Fehrer et al. (2018) aimed to broaden the scope of existing research on customer engagement in two ways: (i) by formalising the fluidity of the engagement process inside a customer-brand pair, and (ii) by analysing the relationships between customers, brands, and other network members in a triadic network setting.

To better understand the factors that influence customer engagement and how they affect service innovation and company performance, Chen et al. (2018) performed a study. Finally, the study investigated broadening the analysis to incorporate additional important features, since there are a large variety of potential precursors to customer engagement and only a small amount of theoretical and empirical research on factors that lead to consumer engagement. According to the multidimensional engagement hypothesis, Ahn and Back (2018) found that customers' sensorial, emotive, behavioural, and intellectual experiences with integrated resort brands led to an increase in all four types of engagement. People who enjoyed their time at the integrated resort on all levels (sensory, emotional, behavioural, and intellectual) brand followers were more likely to engage in observable behavioural patterns related to the brand.

According to Li et al. (2018), valence is a key factor in customer engagement, but not enough is known about it to form a firm understanding. The purpose of their research was to provide the groundwork for future research on the topic of engagement valence in actor networks. Four sets of propositions characterising the field of actor/customer interaction valence are derived from research into foundations of the concept of valence and a bibliometric analytical assessment based on a multi-database search. This study would be the first to formally conceptualise actor/customer engagement valence, and it

would result in the development of a more precise model of actor/customer engagement valence.

Moliner et al. (2018) looked at how factors like customer engagement and consumers' identification with their brands affected things like customer advocacy and business success. This research looked at a complex organisation with a coherent strategy that provides services to the public in several places, with an emphasis on the financial sector. Sashi et al. (2019) found that effective customer engagement leads to advocacy, with customer retention effort and calculative commitment as the two most influential factors in driving advocacy. Affective commitment served as a mediator between rational commitment and support for a cause. The use of social media as a communication tool led to increased customer loyalty and advocacy as a consequence of improved customer retention and rational commitment. Advocacy grew as a direct result of the positive feedback loop between customers' rational and emotional commitments to a brand.

One group of researchers, Itani et al. (2019), looked at what factors can encourage customers to take action towards customer engagement. To ensure the model accurately predicts the positive impacts of customer engagement, customer value awareness was included as a boundary condition. Scientists were asked to investigate potential effects on customer engagement in other ways. Various customer value outcomes happened at the consumers' cognitive, conative, and emotional levels. Chen et al. (2019) set out to rigorously illustrate how users' unstructured data may deliver substantial value for co-innovation by drawing on the latest breakthroughs in cognitive computing approaches. The paper took a high-level assessment of the potential of cognitive computing methods for evaluating users' unstructured data in the context of innovation for customer engagement.

The research conducted by Hollebeek et al. (2019) examined the growth of a crucial notion in the field of customer engagement: its micro-foundational entity. Simultaneously, it was observed that the macro-foundational theory of service-dominant logic is robust and robustly functional. Despite widespread acknowledgement of customer engagement's compatibility on social media, this work investigates why a clear grasp of the theoretical interface between the two remains challenging. In

continuation of Brodie et al.'s work, the research team developed an updated set of customer engagement factors that take service-dominant logic into account.

Study authors Naumann et al. (2020) sought to operationalize and assess the effects of both good and negative customer engagement. Participation is a key factor in creating favourable customer engagement, and customer engagement has a large impact on word-of-mouth. These correlations were true for both the "brand" and "community" categories, indicating that varied elements of a link consistently supported positive customer engagement. To further understand the mediating influence of customer engagement, Yen et al. (2020) studied the effect of innovativeness on customer value co-creation behaviours. In addition, the connection between innovation and customer value co-creation activities was mediated by the level of customer engagement. By delving into the connections between inventiveness, customer engagement, and customer value co-creation behaviours, their research contributes to the knowledge of customer co-creation.

According to Clark et al. (2020), researchers have made significant strides in our understanding of customer engagement over the last several years. This includes developments in the understanding of customer engagement's conceptualization, valence, measurement, and theoretical links. Their research proved that the level of participation a consumer has with a brand affects the stakeholders to whom they are connected. Accordingly, it is impossible to assess a customer's engagement in a vacuum; rather, it must be considered in the context of the customer's networks and the interdependencies of important actors, which in turn produces many time frames for research.

2.1.2. Customer Engagement in Academic Context

An overview of the various customer engagement studies in the academic context, wherein the theoretical background of the concept is determined is represented in table 2.2.

Table 2.2: Summary review of Customer Engagement in extant literature

(Academic context, Year-wise)

AUTHORS	TYPE OF PAPER	CONSTRUCT	PURPOSE OF THE STUDY
Fournier, 1998	Conceptual	Customer Brand Engagement	Relationship Theory in Consumer Research
Bowden, 2009	Conceptual	Customer Engagement	Segmenting customer–brand relationship
Higgins and Scholer, 2009	Conceptual		Science and art of the value creation process
Verhoef et al., 2010	Conceptual		Conceptual model of the antecedents, impediments, and firm consequences of customer engagement
Kumar et al., 2010	Conceptual		Components of a customer's engagement value (CEV) with a firm
Doorn et al., 2010	Conceptual	Customer Brand Engagement	Behavioural manifestation toward a brand or firm, beyond purchase, resulting frommotivational drivers
Hollebeek, 2011	Conceptual		Explored the loyalty nexus
Jahn and Kunz, 2012	Empirical		Investigate the effect of fan pages on the customer-brand relationship and what motivates users to participate
Kuo and Feng, 2013	Empirical	Brand Engagement	Interaction characteristics of brand community
Hollebeek, 2013	Conceptual	Customer Engagement	Ways in which CE may contribute to generating

			customer value (CV) and ensuing loyalty for utilitarian and hedonic brands
Franzak et al., 2014	Conceptual	Brand Engagement	Understanding of brand engagement by examining two of its antecedents: design benefits and consumer emotions
Islam and Rahman, 2016	Conceptual	Customer Engagement	Conceptualizations, dimensions, antecedents and consequences of customer engagement
Dessart et al., 2016	Empirical		Conceptualisation and operationalisation of consumer engagement in the context of online brand communities
Harrigan et al., 2018	Empirical	Customer Brand Engagement	Strategies to develop customer brand engagement
Roy et al. 2018	Empirical		Managing customer engagement behaviour
Alvarez-Milan et al., 2019	Conceptual	Customer Engagement	Explores customer engagement as a firm-initiated resource
Hollebeek, 2018	Conceptual		Consumers displaying differing cultural traits engaging with brands, and their differences
Beckers et al., 2018	Empirical		Investigate the value-related consequences of firm-initiated customer engagement behaviours, using shareholder evaluations of the

			Role duality, role fluidity, platform centrality, tie strength, and multidirectional of peer engagement behaviours
			public announcements as initiatives
Lin et al., 2019	Conceptual	Peer Engagement	Role duality, role fluidity, platform centrality, tie strength, and multidirectional of peer engagement behaviours
Jenssen et al., 2020	Empirical	Customer Engagement	Augmented Reality as stages of customer engagement
An and Han, 2020	Empirical		Psychological motivation of customer engagement

The findings of Fournier (1998) enable theoretically sound relationship applications in the brand context. This article's extensive analyses of symbolic consumption, brand loyalty, and brand personality opened up many new study fields. Consumer-relevant connection themes transcend artificial distinctions. Bowden (2009) wanted to explore the role of engagement, involvement, and trust in creating engaged and loyal customers. A conceptual framework for segmenting customer–brand relationships by first-time vs. repeat customers of a service brand is offered. In conclusion, scholars and practitioners should recognise that engagement is a process including calculative commitment, trust, participation, and emotional commitment.

The research of Higgins and Scholer (2009) explores numerous sources of engagement strength, such as overcoming hurdles through opposing interfering influences and overcoming personal reluctance, preparing for a probable occurrence, and using "fit" or "appropriate" goal-pursuit methods. Verhoef et al. (2010) detailed how customer engagement research has influenced marketing since the 2000's. In a networked world where consumers may easily interact with other customers and enterprises through social networks and other new media, the authors suggest that customer engagement is a key new development in marketing.

Kumar et al. (2010) defined four engagement factors. First is customer lifetime value, then referral, influencer, and knowledge value. Customer engagement factors described in this research offer a foundation for improved marketing approaches that encourage long-term customer engagement. Doorn et al. (2010) developed and examined customer

engagement behaviours, which continue beyond purchase and are driven by motivational reasons. Such behaviours include word-of-mouth, referrals, helping other consumers, blogging, writing reviews, and legal action.

According to Hollebeek (2011), engaged consumers may be more loyal to targeted firms. Despite advancements, engagement remains untapped. This article fills the void by analysing data in multiple sectors of marketing to create a tripartite consumer brand engagement conception. A conceptual model highlighting the unique nature of consumer brand engagement and other marketing aspects was also constructed, followed by customer engagement/loyalty-based segmentation research. Jahn and Kunz (2012) revealed that fan page online service use affects the customer-brand relationship. Theoretically and practically, their results were fascinating. Their research was the first to investigate fan page influence on customer behaviour, reasons for engagement, and management components.

Members of online communities establish "oppositional brand loyalty" by speaking out for the firms they support, argued Kuo and Feng (2013). This research examined how brand community interaction elements affect members' perceived benefits, whether perceived benefits induce community commitment and the connection between community commitment and oppositional customer engagement

According to Hollebeek (2013), the customer engagement approach is swiftly gaining traction in academic marketing literature. Pioneering research has revealed fundamental insights in this emerging area, but little is understood about how customer engagement may assist utilitarian and hedonic enterprises to produce customer value and loyalty. Franzak et al. (2014) studied design benefits and customer emotions to understand customer engagement. As design benefits changed from utilitarian to hedonic to symbolic, emotional arousal improved brand engagement. This article's conceptual model has applications in product design, branding, and brand messaging. Marketers should anticipate brand engagement results early in the product or service development process, include consumers, clearly communicate design benefits, and provide support. Brand involvement is a unique brand-related behaviour overlooked in design and marketing literature.

According to Islam and Rahman (2016), marketing researchers who wish to fully understand consumers should investigate customer engagement. Marketers viewed customer interaction as their top branding tactic. Marketers recognised customer participation as a driver of consumer decision-making, organisational performance, reputation, and value. This research helps organisations understand customer engagement.

Dessart et al. (2016) define customer engagement in online brand communities. Previous research on participation dimensions and engagement foci has had major theoretical and empirical ramifications. Prior studies in relationship marketing, brand communities, and consumer identification advised separating research foci to minimise misunderstanding. The variety of focuses is particularly crucial online, where engagement is high but complexity is high. This approach is akin to firms acting as social agents in brand-related organisations. The research adds to brand community and social network literature by capturing multidimensional interactive customer engagement on various platforms.

Harrigan et al. (2018) show how customers utilised social media to communicate with tourism enterprises. The researchers used social exchange theory to model's link to customer engagement, self-brand connection, and brand use. According to Roy et al. (2018), organisations should prioritise regulating consumer engagement behaviour to build customer-firm alliances. This research explored consumer interaction behaviour. The research examined service fairness, trust, value-in-use, and customer engagement.

Hollebeek (2018) made two theoretical advancements. While consumer engagement was gaining popularity, little was known about how consumers with varied cultural features interacted with organisations. This paper examined customer engagement with brands for consumers with different cultural features and created research propositions for their cognitive, emotional, behavioural, and social customer engagement in brand-related activities. Beckers et al. (2018) contend that academic research on the business value ramifications of customer engagement activities is scarce. Their study examines firm-initiated consumer engagement activities using shareholder judgements of public announcements. Social media-supported programmes that promote word-of-mouth are less negative than those that require customer input.

In their study, Alvarez-Milan et al. (2019) investigated consumer involvement as a firm-initiated resource, drawing on social exchange theory. For starters, while their research outlined how managers understood customer engagement, it was unclear how firms arrived at these conceptualizations. Finally, as possible targets, the current study distinguished between end-users and intermediaries. Customer engagement has been and continues to be widely addressed in the context of social media marketing, and research in this area has therefore highlighted the of many stakeholders. Lin et al. (2019) evaluated peer engagement behaviours about customer, employee, and actor engagement behaviours using social network theory as a theoretical framework. Their study focuses on role dualism, role fluidity, platform centrality, tie strength, and multidirectional peer interaction behaviours.

Jessen et al. (2020) proposed a novel sort of customer engagement based on user interaction. They described a system of creative consumer interaction in which customer creativity derives from enhanced customer engagement and generates intrinsic delight for consumers. An and Han's (2020) study examines the psychological reasons for customer engagement and offline retail consumer behaviour. It examined customer engagement and value creation. Using a psychological perspective, this research described the process of customer engagement.

2.1.3. Customer Engagement in Marketing and Service Context

An overview of the various customer engagement studies in the marketing and service context, wherein the theoretical background of the concept is determined is represented in table 2.3.

Table 2.3: A summary review of Customer Engagement in extant literature (Marketing and Service context, Year-wise)

AUTHORS	TYPE OF PAPER	CONSTRUCT	PURPOSE OF THE STUDY
Roberts and Alpert, 2010	Conceptual	Customer Brand Engagement	Service engagement models
Brodie et al., 2011	Conceptual	Customer Engagement	Relationship marketing
Jaakola and Alexander, 2014	Empirical		Private sector rail transport firm operating in Scotland

Lemon and Verhoef, 2016	Conceptual		Brand customer experience
Harmeling et al., 2017	Empirical		Supermarket conjunction
Hollebeek and Andreassen, 2018	Conceptual		Service innovation
Abdul-Ghani et al., 2019	Conceptual		Customer-to-customer interactions
Johnson etal., 2019	Empirical		Healthcare services in India
Bayighomog and Arasl, 2019	Empirical		Service employees of hotels
Kumar et al., 2019	Conceptual		Business-to-customer service firms from the perspective of managers
Singh et al. 2021	Conceptual		Artificial intelligence
Hollebeek et al., 2021	Conceptual		Artificial intelligence

Roberts and Alpert (2010) note that organisations have several challenges nowadays, making customer engagement more important than ever. How companies usually operate makes customer engagement difficult. Perhaps the hardest part of boosting customer engagement is combining consumer branding, corporate marketing, and service delivery. Some experts believe that word-of-mouth appreciation from consumers has a far greater impact on target audiences than conventional marketing tactics. Engaged customers provide valuable input and are less likely to take their complaints elsewhere, boosting their value. Brand and internal culture are key. The organisation should explain its customer value proposition across all brand characteristics. Because employees fulfil the brand promise, business culture is key to maintaining staff commitment.

Brodie et al. (2011) created a conceptual framework for future theoretical and empirical customer engagement exploration. Despite the interest, scholarly research on the idea and its conceptual differentiation from comparable relational notions is limited. Five propositions were used to build a future research framework that would refine customer

engagement's conceptual realm. Jaakkola and Alexander's (2014) study highlights the uncertainty between firms and consumers. Customer engagement comprises non-transactional consumer behaviours that affect a firm. They offered nine analytical frameworks that relate customer engagement to value co-creation by focal customers, the focal firm, and other stakeholders.

Lemon and Verhoef (2016) say organisations must comprehend consumers' travels throughout time. Customers engage with companies across channels and media, and customer experiences are becoming social. Customer engagement tries to distinguish customer attitudes and behaviours beyond purchases. Attitudinally, customer engagement is a "psychological state that comes through interactive, co-creative consumer interactions with a focal agent/object in focal service relationships." Harmeling et al. (2017) discussed how customer engagement marketing indicates a revolution in marketing research and company practice. After defining and differentiating engagement marketing, the authors proposed a typology of its two primary forms and offered tenets that link strategic elements to customer outcomes and firm performance. They theorised that engagement marketing's effectiveness stems from psychological ownership and self-transformation.

According to Hollebeek and Andreassen (2018), while research on customer engagement and service innovation was quickly growing, there was little understanding of how these two topics intersect. However, given the underlying sense of interaction shared by both notions, the goal of this work was to investigate their theoretical interface, which has remained elusive to far. Abdul-Ghani et al. (2018) found that consumer-to-consumer connections are growing. Online platforms let consumers socialise, trade, and exchange digital content. Models of engagement in marketing settings are regulated by consumer-brand or consumer-firm interactions, which are often conceptualised using S-D Logic.

In their paper, Johnson et al. (2019) investigated the impact of the customer-to-customer relationship on consumers' willingness to participate in altruistic customer engagement or co-production activities. It then examines how consumer scepticism about services affects interaction on altruistic customer engagement and customer happiness. Bayighomog and Arasl (2019) explain that growing customer engagement requires top frontline service performance and management-recommended behaviours. This

research examined employee customer-oriented boundary-spanning behaviours as a consequence of spiritual leadership utilising social exchange and social identity theories, using employee spiritual survival and well-being as a moderator.

Based on service-dominant reasoning, Kumar et al. (2019), created a framework to help customer engagement in service. This framework's applicability and relevance to companies in both established and emerging markets was a unique characteristic. Singh et al. (2021) studied the increase of service firms' customer contact streams. This article provides a conceptual framework of firm capacity that allows organisations to perform with "one voice" so customer engagement is smooth, harmonic, and reliable.

Hollebeek et al. (2021), highlight how artificial intelligence is expected to have a revolutionary transformative influence on service organisations, particularly influencing how businesses interact with their consumers. In parallel, customer engagement, which represented customer engagements with brands, services, or companies, had moved to the top of many managers' strategic wish lists in the previous decade. In response to this gap, their study provided a ground-breaking investigation of customer engagement in automated or AI-based service interactions. It was therefore closed with a summary of other study options in this expanding topic, which has the potential to evolve into a major service research subfield. Regardless of the dispute, numerous customer engagement characteristics exist, as listed below. To begin, as the preceding definitions demonstrate, customer engagement developed through consumer encounters with a brand, service, or company. AI likely influenced customers' investments in their service interactions by responding to or forecasting consumer requirements, therefore impacting customer engagement. Second, although positive customer engagement resulted in good brand-related cognitions, emotions, and actions, negative customer engagement attempted to degrade specific actors. While customer engagement states might change, consumers' more stable engagement styles represented their usual or characteristic involvement with a brand/firm, making the latter a more appropriate customer segmentation variable. Following that, the researchers disseminated the AI- and customer engagement-based knowledge by establishing a set of customer engagement propositions in automated service interactions. Given the emerging knowledge of customer engagement in automated

service encounters, their study provided a framework for integrating two previously separate research streams.

2.1.4. Customer Engagement and Social Media

While experimenting with different methods of marketing and techniques to encourage and assess consumer engagement, social media has proven to be a formidable force. Social media brought about a revolution that had the greatest impact on customer engagement since it made marketing cheaper for businesses, reached out to bigger masses of prospective consumers, and made gauging customer engagement much easier. This has made company marketing efforts considerably easier and more simplified.

The customer begins their social media engagement by viewing a company's website. It emphasises the necessity for businesses to attract increasing amounts of visitors to their websites while simultaneously attempting to retain people there for an extended length of time. Companies provide more unique and engaging content for their websites in order to achieve this. Asking individuals to engage in surveys, marketing events, freebies, contests, free membership, and social media platform following is just one of the numerous techniques that may be used. This means that businesses must constantly update their social media accounts, as well as their own websites, with postings that are tailored to the consumers' tastes and requirements. This generates e-WOM, which seems to be the new element that every company strives for in social media marketing and is a good indicator of consumer involvement. e-WOM gives businesses the ability to deal with both negative and positive consumer impressions.

In the event of a bad perception or comment, the firm has the chance to clear the air, and therefore a primed platform to connect with the unhappy customer and give a quick and effective reaction. This establishes a personal relationship with every company's consumer, assisting in the generation of personalised and selected communications for each individual. Analytics now allows shops to reach consumers on other social media sites depending on the items they have recently looked for. Table 2.4, provides a summarised extant literature in the same context.

Table 2.4: A summary review of Customer Engagement (CE)

and social media in extant literature (Year-wise)

AUTHORS	TYPE OF PAPER	CONSTRUCT	PURPOSE OF THE STUDY
Mollen and Wilson, 2010	Conceptual	Engagement	Brand personification in websites
Chu and Kim, 2011	Empirical	Customer Engagement	e-WOM in social media platforms
Sashi, 2012	Conceptual		Buyer seller relationships on social media
Smith et al., 2012	Empirical		User generated content on social media platforms of Facebook, YouTube and Twitter
Gummerus et al., 2012	Empirical		Gaming brand community on Facebook
Brodie et al., 2013	Empirical		Virtual brand community
Oviedo-Garcia et al., 2014	Conceptual		Comprehensive measurement metric for Facebook engagement
Verleye et al., 2014	Empirical	Customer Brand Engagement	Engagement through online feedback
Cabiddu et al., 2014	Empirical		Social media brand engagement
Murchardie et al., 2016	Empirical		Effects of social media marketing on customer engagement
Moreno-Munzo et al., 2016	Conceptual	Customer Engagement	Mobile social media smart grids
Tafesse, 2016	Empirical		Social media brand pages
Marbach et al., 2016	Empirical		Social media brand communities personality

Guesalaga, 2016	Empirical		Social media in sales engagement
Islam et al., 2017	Empirical		Personality traits in Facebook based online brand community
Harrigan et al., 2017	Empirical		Measurement scale based on social media context
Mathwick and Mosteller, 2017	Empirical	Engagement	Amazon online reviewer engagement
Saragih, 2017	Empirical	Customer Engagement	Online social media in transport
Song et al., 2018	Empirical		Restaurant brand page engagement on Facebook
Zhang et al., 2018	Empirical		Value creation/destruction in online platforms
Carvalho and Fernandes, 2018	Empirical	Customer Brand Engagement	Virtual brand community in social media platforms
Algharabat et al., 2018	Empirical		Facebook page of non-profit organisations based in Jordan
Voorveld et al., 2018	Empirical	Customer Engagement	Social media platforms engagement
Machado et al., 2019	Empirical	Customer Brand Engagement	Brand gender analysis on Facebook
Carlson et al., 2019	Empirical	Customer Engagement	Social media brand pages
Busalim et al., 2019	Conceptual		Social commerce websites
Read et al., 2019	Empirical		Twitter handles of brands
Hollebeek et al., 2019	Conceptual		Evolving technological environment
Hanson et al., 2019	Empirical	Customer Brand Engagement	Online brand community

Connell et al., 2019	Empirical	Customer Engagement	Online retail brand websites
Kim et al., 2020	Empirical		Social media engagement among restaurant customers
Santini et al., 2020	Empirical		Social media engagement
Riley, 2020	Conceptual		Social media brand communities

Mollen and Wilson (2010) created a conceptual framework that harmonises professionals' notion of customer engagement as vital to online best practise with the academic approach, which uses other factors to quantify customer experience. Based on e-learning and online marketing research, they described the consumer's response to website and ambient stimuli as a dynamic, tiered perceptual spectrum that includes interactivity, telepresence, and engagement.

As more marketers utilise social media as part of their promotional mix, Chu and Kim (2011) say it's crucial to study the aspects that impact customers' eWOM through social networks. Given the social and communal components of Facebook, MySpace, and Friendster, this research examined how social connection characteristics relate to online eWOM promoting customer engagement.

According to Sashi (2012), the internet, especially Web 2.0's interactive features, has increased customer contact in recent years. Social media's ability to help build personal customer interactions has captivated global managers' curiosity. The article presents a customer engagement cycle model that incorporates connection, interaction, satisfaction, retention, loyalty, advocacy, and engagement. It places customers in a customer engagement matrix depending on their connection with retailers. Smith et al. (2012) compared Twitter and YouTube user-generated content. The researchers aimed to provide a preliminary framework for comparing brand-related posts, to add another dimension to understanding how selective social media channels influence user-generated content, and to bring forward the various user-generated content used by brands that rely heavily on them for marketing and promotion and customer engagement. It was hypothesised that: Millennials preferred side panel ads, they did not like pop-up ads, personalised digital marketing was able to grab the attention and prompt the Millennials to repeatedly visit a website, and that personal

benefit is the motivator for millennials to write peer reviews. Considering 571 millennials of a prominent Southwest US university as sample, it was concluded that features such as pop-ups, flashing items, links, compulsory software downloads, and un-closable browser tabs were considered as the annoying strategies undertaken by companies and that Millennials ignore them in an instant.

Customer engagement comprises a customer's whole spectrum of company-related behaviours. Gummerus et al. (2012) examined he impact of customer engagement on perceived relationship benefits and results. This was the first study to relate customer activity in a Facebook brand community to relationship structures. Their study was one of the first empirical studies to distinguish distinct types of online interaction and assess their influence on brand ties. Despite the frequent use of the word "engagement" in brand communities, Brodie et al. (2013) say its theoretical meaning and roots remain unexplored. This research employed ethnographic methodologies to analyse customer engagement in an online brand community. Integrating other consumer behaviour theories that address individual and/or social identity is also important.

Oviedo-Garcia et al. (2014) developed a technique for evaluating customer engagement on Facebook. The study shows how to calculate client engagement on social media. Such analytics will help marketers discover posts and content that stimulate customer engagement and what they should avoid to prevent retribution. The researchers have provided an insight in to the starting for calculation of customer engagement on social media platforms. It has been argued that such metrics would help in understanding the types of posts and content that inspire active customer engagement and what the marketers must avoid to avoid backlash. This gives the marketers with better data analysis for better decision making process and also helps them to understand the varied dimensions to customer engagement and the current trends and future trends to expect in a bid to active customer engagement. Verleye et al. (2014) said organisations wanting long-term success must increase customer engagement. Methods to manage various customer engagement behaviours may help accomplish this aim. This research proposes and tests a managerial and psychological model to promote customer engagement integrated in a broader network of customers and stakeholders to establish more effective and efficient management practices.

According to Cabiddu et al. (2014), despite the recognised usefulness of social media for customer engagement, comprehension is limited, and new theories may shed more light on social media in the tourist context. Moreno-Munzo et al. (2016) show how social media platforms may be used to engage customers in the energy industry and influence consumer perceptions regarding renewable energy sources. Smart grids in social networking sites, along with developing technology and hardware, may provide users access to new consumer engagement options. One of the most commonly aspect talked on social media marketing is the lack of human touch which for the energy providing firms can turn around by being an energy advisor rather than just energy provider for their consumers. As observed that customer engagement actions have been following gamification route for going more attention of the consumers, it would take a combination of personalisation, exclusivity and technology for the energy firms to bring about long term and active customer engagement from their consumers.

Murchardie et al. (2016) studied social media marketing's influence on consumer engagement and loyalty. Connection, satisfaction, retention, commitment, advocacy, and engagement determined customer engagement, whereas participation, openness, conversation, community, and connectedness prompted enterprises to employ social media marketing. Using path analysis it was concluded that social media had an deeper effect on customer engagement and not the other way around and that for better customers engagement it won't be too prudent for the marketers to prefer having a dedicated social media cell for dealing with the content and feedback on the social media sites of the company. According to Tafesse (2016), brand sites that provide perceptual, cognitive, bodily, and social experiences increase customer engagement. When evaluated as a route for customer interaction, brand pages exhibited more active customer engagement, but as a medium for information exchange, they carried more complaints than communication with consumers. This reduces the need for firms to follow a top-down approach, where marketers work from broad objectives to specific parts. This in itself is a proof that by building a strong core in social medial capabilities on their webpages in the form of experimental content production and distribution, a firm will have higher chances of having active customer engagement from their customers in the long run.

Marbach et al. (2016) explored how customers engage with online goods and services and how organisations engage customers actively. Researchers developed a theoretical framework for social media brand communities based on 28 semi-structured interviews. Extroversion/introversion, agreeableness/disagreeableness, conscientiousness, openness to experiences, neuroticism, need for activity, the need for learning, the need for stimulation, and altruism influenced customer engagement in consumers. Guesalaga (2016) showed customer contact on social media platforms of different firms and how a person or organisation may participate. Both the sales staff and the customers' passion and expertise had a synergistic effect that led to active, long-term customer engagement for the businesses. Sample size of 220 sales executes based in United States of America was considered and Sobel test was used on the data collected from them. It was then concluded the both factors of commitment and competence from both the sales force and the consumers created a synergistic effect which brought bout an active customer engagement for the business firms which turned out to be long tern due to their relationship with each other.

Islam et al. (2017) examine the connection between customer personality and online brand community engagement. Their study also examined customer engagement and buying intent. This article explains how marketers may use customer personality traits to boost customer engagement in online brand communities and buy intent for particular offers. Harrigan et al. (2017) confirmed the So, King, and Sparks model of tourist branding (2014). Findings showed a shift in enterprises' social media customer contact. Three primary components of customer engagement have been identified: cognitive, emotional, and behavioural. This generates a necessity for companies to understand how efficiently and effectively could they use the various social media platforms and their functions such as pictures, videos, polls, reviews, comments, blogs etc., which being both marketer and user generated, fulfil the three main aspects of customer engagement

Mathwick and Mosteller (2017) study examines online reviewer engagement. A diversified sample showed excellent theoretical and managerial insights. Some scholars suggest that public ranking systems may be used to ostracise substandard performance. Researchers should examine the impact of community rank on reviewers who perceive social inclusion gaps. Saragih (2017) looked at customer engagement in

the transportation industry online by mining Facebook and Twitter comments. Social media comments may be used to assess online corporate transportation services. Using sentiment analysis, the researcher observed that most comments were complaints to the business and that corporate feedback and customer feedback garnered the most comments.

Song et al. (2018) evaluated the influence of three social presence characteristics on customer engagement and customer-brand identification. By using social presence and social identity theories on Facebook brand pages, this research highlighted the mechanism driving customer engagement and generating psychological closeness between consumers and companies. Zhang et al. (2018) construct a model to explain online consumer co-creation/co-destruction. When customers are happy, feel valued, experience reciprocity, obtain organisational incentives, are sought for feedback, and can depend on service recovery efforts, co-creation may occur. Their study highlighted the components and framework that lead to customer engagement-induced co-creation and co-destruction in online channels.

Carvalho and Fernandes (2018) say social media has changed marketing by enabling people to connect with firms in new ways. Their article aimed to model the causes, effects, and moderators of customer engagement in social media virtual brand communities. Engagement, interaction, and flow experience are primary drivers, while satisfaction, trust, word-of-mouth referrals, and commitment are linked outcomes, with brand community identity and confidence as possible mediators. According to Algharabat et al. (2018), although social media marketing has had many marketing consequences, less attention has been paid to the influence of customer engagement on organisations. Their major purpose was to evaluate the effect of telepresence, social presence, and participation on customer engagement, which affected electronic word of mouth and willingness to contribute.

Voorveld et al. (2018) studied how customers engagement with social media platforms led to engagement with advertising and evaluations of this advertising. Their survey analysed social media users' usage of Facebook, YouTube, LinkedIn, Twitter, Google, Instagram, Pinterest, and Snapchat, as well as their advertising experiences and views. Brand gender is a source of consumer-based brand equity, according to Machado et al.(2018) This research investigated how consumer–brand contact and brand love

mediate the correlation between brand gender and customer engagement. This study shows the advantages of clear gender positioning and suggests that organisations with strong gender identities will promote customer engagement.

Carlson et al. (2019) found implications for adjusting social media marketing approaches to proactively develop customer engagement based on user feedback and collaboration intentions on brand sites. Busalim et al. (2019) reviewed customer engagement in social commerce. E-commerce popularity shows how this new phenomenon captivates consumers. They focused on an empirical study of customer engagement in e-commerce. Social commerce has helped companies and consumers. Knowing client interaction behaviour in e-commerce is a competitive advantage for organisations striving to become customer-centric. Their study examines e-commerce customer engagement studies.

Read et al. (2019) built and tested a theoretical framework for Twitter customer engagement. In-depth interviews were used to gauge Twitter user engagement. Consumer perceptions of a brand's Twitter popularity and value delivery were moderators in the conceptual framework. Hollebeek et al. (2019) studied how consumers engage with brands and enterprises in changing technologies. Their research examines how companies employ new technology to enhance customer engagement. New technology may be used at every stage of the marketing process, including segmentation, targeting, and positioning, to support or modify any marketing mix element, altering consumer engagement with firms. Similarly, marketing mix pieces must be changed to meet customers' technical expectations, which may vary across product offerings or over time.

Hanson et al. (2019) studied how user reputation signals might promote customer engagement. This research conducted four tests on customer reactions to online brand forum reputation signals. Role clarity and connection were the psychological factors that emphasised the influence of reputation signalling on customer involvement. Connell et al. (2019) found that product-related contextual signals affected customer engagement on a website, showing customer engagement occurred at the product level. Websites serve as the third node in a triadic interaction between consumer, brand, and website. This research showed a relationship

between website environmental cues and customer engagement, helping managers drive customer engagement.

Kim et al. (2020) noted how internet contact has become an integral part of the hotel consumer experience. Flow theory is vital for understanding online customer engagement. It also showed how to get a competitive advantage by proactively managing customer engagement with social media marketing through flow. Flow is key to understanding online customer engagement. Santini et al. (2020) analysed consumer engagement with social media utilising contentment, pleasant sensations, and trust to encourage customer engagement, not commitment. Satisfaction better predicts customer engagement in high convenience and Twitter. Riley (2020) said customers spend too much time on social media. Because of social media, marketers must innovate to stay top-of-mind with consumers and rethink the customer engagement path. Social media facilitated offline brand communities online. The research aimed to build a paradigm for maintaining social media brand communities via customer engagement and content generation.

2.1.5. Government services, and Indian Railways in social media, technological initiatives and online services.

Governments are taking advantage of the rise of social media as a key platform for online interactive engagement to increase customer engagement in socio-political matters. These new forms of communication have also been adopted by the government services, which employ them for a variety of reasons, including breaking down the traditionally high communication barriers that exist with government. Numerous scholars have noted the positive effects of social media on public-sector communication, customer engagement, transparency, trust, democracy, and the sharing of best practises amongst different government organisations. Various schools of thought on the subject of social media's role in public administration and civic life have been taken into account. While there is evidence that social media is being employed to increase customer engagement, there has been relatively little study of this phenomenon. Table 2.5, provides a summarised literature in the same context.

Table 2.5: A summary review of Government services, and Indian Railways in social media, technological initiatives and online services in extant literature (Year-wise)

AUTHORS	TYPE OF PAPER	CONSTRUCT	PURPOSE OF THE STUDY
Kochak and Sinha (2004)	Conceptual	Social media and online services	Government technology initiatives
Raghuram (2007)	Conceptual	Technological initiatives	Indian Railways digital transformation
Jain and Yadav (2013)	Empirical	Social media marketing	Internet marketing of Indian Railways
Cegarra-Navarro et al. (2014)	Empirical	Technology adoption	Launching of technology related services by government bodies
Pareira and Narayanamurthy (2016)	Conceptual	Technology advancement	Indian Railways' need for modernisation
Sinha and Sarma (2016)	Empirical	Technology	Indian Railways customer experience and service quality
Rosario et al. (2016)	Empirical	Social media platforms	Spanish citizens' municipal government interactions on Twitter and Facebook
Mahajan-Cusack (2016)	Empirical	Social media platforms	How social media affects engagement and government openness in US municipalities context
Medaglia and Zheng (2017)	Conceptual	Social media platforms	Phenomenon of government social media
Sachdeva and Sharma (2017)	Empirical	Online services	E-Services developments in the Indian Railways

Marino and Presti (2018)	Empirical	Customer engagement	Analysing consumer engagement based on message to evaluate European Commissioners' social media postings
Narayanaswami (2018)	Empirical	Social media and online services	Paradigm shift in customers' interest and attention toward Indian Railways on their social media handles.

Kochak and Sinha (2004) emphasise the innovative changes Indian Railways can make in modern business vision, market orientation, new technology and materials, alternative fuels, managerial competency, individual and organisational development, and managing for the future to keep up with the 21st century. Smart cards for identity, ticket booking, attendance, interagency communication, banking, health, and personal health updates will benefit customers and adoption of high-speed technologies. Raghuram (2007) analyses the Indian Railways' "turnaround" in freight, passengers, and other procedures. According to the researcher, the best strategies are those that the Indian Railways think are best for customers, not initiatives. Despite their many endeavours, the Indian Railways' plans are supply-driven rather than customer-driven, which dissatisfies consumers and starts the cycle of failure. Executives resist organisational reforms. The researcher advises organisational modifications for general transformation.

In their study, Jain and Yadav (2013) gave a comprehensive assessment of all the key measures done by the Indian Railways to enhance internet marketing and tracked the rate and pattern of technical changes. The pre-bubble era may last till maturity due to the growing user base and new prospects. To demonstrate the internet's potential, this article covers online ticket reservation patterns and Indian Railways' online marketing revenues. According to Cegarra-Navarro et al. (2014), governmental bodies should promote technology-knowledge before launching a technology-related activity to involve citizens. Technology-knowledge supports civic engagement, thus local government website designers should take attention.

Pareira and Narayanamurthy (2016) explain why Indian Railways value consumers. According to the Government of India's assessment, Indian Railways needs modernization and generational transition to ensure safety, boost efficiency, take advantage of technology advances, satisfy rising demand, and achieve inclusive growth. Sinha and Sarma (2016) detailed the Indian Railways' difficulties and potential to accelerate expansion. After independent investigations showed concerns about service quality and timeliness, Indian Railways committed to customer experience. Under private investing regions, Indian Railways proposes redeveloping and equipping key stations with world standards.

Local governments are realising that social media may improve public participation in political and social issues, according to Rosario et al. (2016). This article examines the dedication of Spanish citizens' municipal government interactions on Twitter and Facebook. Online transparency, temperament, social media activity, and local government website interactivity also affect participation levels. This study illuminates how governments' social media use impacts customer engagement. Mahajan-Cusack (2016) examined how social media affects engagement and government openness in a nationally representative sample of highly successful US municipal governments. This study evaluated this sample's social media use to find best practises and explore the pros and cons of utilising social media in local government. Areas discussed included the company's desire to utilise social media, social media management throughout the organisation, social media tool selection, official and informal social media rules and procedures, and social media's benefits and hazards.

The growing phenomenon of government social media, as stated by Medaglia and Zheng (2017), demands for better-informed and more intricate studies, but they all begin with a deeper understanding of the literature already out there. On the basis of a comprehensive review of the e-government literature, the researchers created a taxonomy of government social media research, dividing it into the following six sections: context; user characteristics; user behaviour; platform qualities; management; and impacts. Social media platform characteristics, as well as the interplay between different perspectives on the government social media phenomenon, are under-researched, while the focus is on government rather than users, context, and management.

Sachdeva and Sharma (2017) examined E-Services developments in the Indian Railways. They concluded that Indian railway E-Services benefited internet users. To encourage the Indian Railways and its customers to embrace e-marketing and E-Services, the researchers present a bird's-eye perspective of forthcoming trends. The major subject was how Indian Railways passengers profited from their passenger reservation system and their reaction to their online offerings. After analysing data from publications, journals, and websites, they found that Indian Railways was the leading e-services provider in India. Railway e-ticket booking has grown faster than airline ticketing. India's e-services are growing thanks to the government's Digital India plan. Indian Railways is a model online service provider with its online tickets and services.

Marino and Presti (2018) suggested analysing consumer engagement based on message to evaluate European Commissioners' social media postings. The paper also suggests ways governments might use social media to provide content for consumer interaction. Customer engagement must be quantified to discover which types of public communication best encourage interaction and deepen citizen-public institution interactions.

In his study, Narayanaswami (2018) highlighted the paradigm shift in customers' interest and attention toward Indian Railways information gathering and distribution. He thought social media was the best way for people and big companies to communicate. Indian Railways receives about 7000 tweets a day with complaints, recommendations, and help. After succeeding in social media, India Railways now has a Social Media Cell that classifies tweets as low, high, or urgent and mitigates them with relevant authorities within 8 minutes. Indian Railways heavily subsidises airlines to compete with cost-conscious ones. They might improve their image among travellers. This caught travellers' emotions. Their Twitter account began receiving #MyTrainStory tales and photos. Thus, it became the national emotional link. Indian Railways improved consumer involvement by live streaming the rail Budget, calling for public suggestions, disseminating safety measures, providing information from a trustworthy source, and responding quickly to customer complaints. The ministries that utilise social media for marketing use three types of interactive methods: managerial, consultative, and participatory. The Indian Railways adopts Mor's Twitter Handle technique for customer communication, with @RailMinIndia focused on participatory

civic body involvement and @sureshprabhu on management. Retweets are "Feedbacks" while tweets are "Responses." The researcher suggested that Indian railway needs learn from successful foreign initiatives to increase its social media presence. He gave examples of European railway operators using Twitter and Facebook for grievance redressal rather than revenue generating with videos as their campaigning weapon. Display advertising, social media education, and real-time customer assistance should be the priorities of renowned stations.

2.2. Research Gap

In recent social media marketing, facts and trends such as voice marketing, micro-influencing, general data protection and regulation, profile hacking, programmatic buying and real-time bidding, responsive design and visual storytelling, automated marketing, personalisation micro-targeting along with localisation and translation, whole social media marketing concept have changed from its initial conceptualisation.

So the main points wherein more research must be focussed include the following -

- Currently, research is done on the intrinsic utility i.e., the direct impact of content posting on social media platforms and image-related impact, concluded from the consumers' or competitors' perspective.

- Data mining was previously an unchartered area for Indian railways, but now with the sheer volume of data generated per day categorising them and calculating the impact factor of each post based on such data has become a necessity.

- Previously Government agencies and especially Indian Railways used social media platforms for information dissemination purposes but with the multi-usage of social media platforms by the private players, Indian Railways have changed their tactics and have started using social media platforms for sales volume generation and customer engagement purposes

The big data generated and collected from consumers narrate a bigger picture in an ever-changing virtual scenario. It now depends on how much volume, variety, velocity and veracity of data are being utilised for maximum effect by marketers in their marketing narrative. This is where data mining plays its role. But in the current social media scenario, in India, data is out there which are yet to be classified and understood. Key areas such as persona development for better tracking of consumers along their buying steps; web retargeting based on the consumers' web visit and cookie data;

understanding and measuring customer engagement as well as disengagement to figure out patterns for existing as well as new consumers for product/services etc.; development of parameters for accurate prospect conversion; and better-paid campaign analysis for a better investment, are some of the areas where social media marketing can be honed into. All of the above discussion burns down to better monitoring of customer engagement. In the current scenario of highly competitive, communicative along with the highly cynic mindset of the consumers, organisations and marketers are now banking on having a better-engaged customer for effective results.

Social media marketing is used by various Indian Ministries as a medium for transitional communication with the general public. Not only government agencies and ministries are using social media platforms as a form of persuasive marketing, but are also, in turn, categorising the huge data collected for understanding citizens - needs and exceptions, unearthing citizen involvement drivers, ways to retain consumers, ways to increase revenue generation opportunities, creating brand loyalty and brand perception among the citizens and lastly capitalising on the catalyst i.e., word-of-mouth, amongst existing customers for coat free marketing.

The interest of this study is to present exploratory research into the social media marketing aspect of Digital Marketing, focusing on the social media platforms of Indian Railways. The main purpose is to understand the evolution of the Customer Engagement concept and to evaluate the customers' psychological and behavioural connections with a public service provider going beyond the service user experience. The present work is an attempt to make a critical study of the Customer Engagement practices of Indian Railways on social media platforms. Therefore, the present study has some relevance in the systematic investigation. The present study has focused on the following key questions:

- Is there any possibility to develop or apply any existing framework/model of Customer Engagement on Social Media platforms, suitable for Indian Railways?
- Is it possible to critically analyse the Customer Engagement practices of Indian Railways on social media platforms, based on the framework/model developed?
- How demographics affect customer engagement on social media handles of Indian Railways?

3. METHODOLOGY

The research methods utilised for the study are broken down in this chapter. The selection of a relevant population, an adequate sample size, an ideal sampling methodology, an appropriate study design, proper data analysis methodologies, and so on are just a few of the many important considerations that are essential to the ethical conduct of research.

3.1. Type of Research/Research Design: The present study is an exploratory type of research.

3.2. Objectives

The proposed study tried to explore customer engagement on the social media handles of Indian Railways, under the following objectives:

1. To identify a customer engagement framework for Indian Railways through Bibliometric Analysis.
2. To determine the factors affecting customer engagement towards the services of Indian Railways on social media handles.
3. To study the influence of demographics on customer engagement towards the services of Indian Railways on social media handles.

3.3. Hypothesis of the Study

Keeping in context the conceptual model formed and the objectives formulated the following hypotheses have been proposed-

$H1_0$: There is no significant difference among the respondents belonging to different "Railway Zones" regarding customer engagement on social media handles of Indian Railways.

$H2_0$: There is no difference in the population means of all age groups regarding customer engagement on social media handles of Indian Railways.

$H3_0$: There is no difference in the population means of all gender groups regarding customer engagement on social media handles of Indian Railways.

$H4_0$: There is no difference in the population means of all educational qualification groups regarding customer engagement on social media handles of Indian Railways.

$H5_0$: There is no difference in the population means of all occupational groups regarding customer engagement on social media handles of Indian Railways.

H6₀: There is no difference in the population means of all Railway Zones regarding customer engagement on social media handles of Indian Railways.

H7₀: There is no correlation between the factors of customer engagement for Eastern Railways.

H8₀: There is no correlation between the factors of customer engagement for Northeast Frontier Railways.

H9₀: There is no correlation between the factors of customer engagement for South Eastern Railways.

3.4. Proposed Conceptual Model

The conceptual model or framework is a graphical depiction of the theoretical connections between the many concepts and variables in the current study. Research constructs and variables useful in formulating the conceptual model can be uncovered by a thorough examination of the existing literature. Further, it serves as a foundation for understanding the interconnections between the many concepts and variables. In the current study, the constructs/variables were identified by a comprehensive literature analysis, and their interrelationships informed the creation of a conceptual model. Therefore, the aims of the present research effort might be met by the integration of many theories, models, and variables into the proposed conceptual model as achieved under objective 1 (Figure 3.1).

Customer engagement is multifaceted and customers' personal connection to an organisation/brand as evidenced in cognitive, emotive, and behavioural acts outside of the purchase circumstance was its previous definition. Customer engagement cannot be fully measured by cognition, emotion, and behaviour. This study thus, used five criteria to characterise customer engagement, however some antecedents remain disputed. Customer engagement in this study has five emotional and behavioural dimensions: Identification, Enthusiasm, Attention, Absorption, and Interaction. These five parameters define consumer involvement, but each has antecedents.

The research needed a five-dimensional measuring approach to determine if customer engagement was reflective or formative. A reflecting model generates parameters, whereas a formative model generates concepts. A reflective model of customer engagement argues that its parameters—Identification, Enthusiasm, Attention,

Absorption, and Interaction—cause it. The five parameters are supposed to vary together, so changes in one affect the others. Thus, changes in one parameter affect all five suggested parameters.

Figure 3.1: The Proposed Conceptual Framework
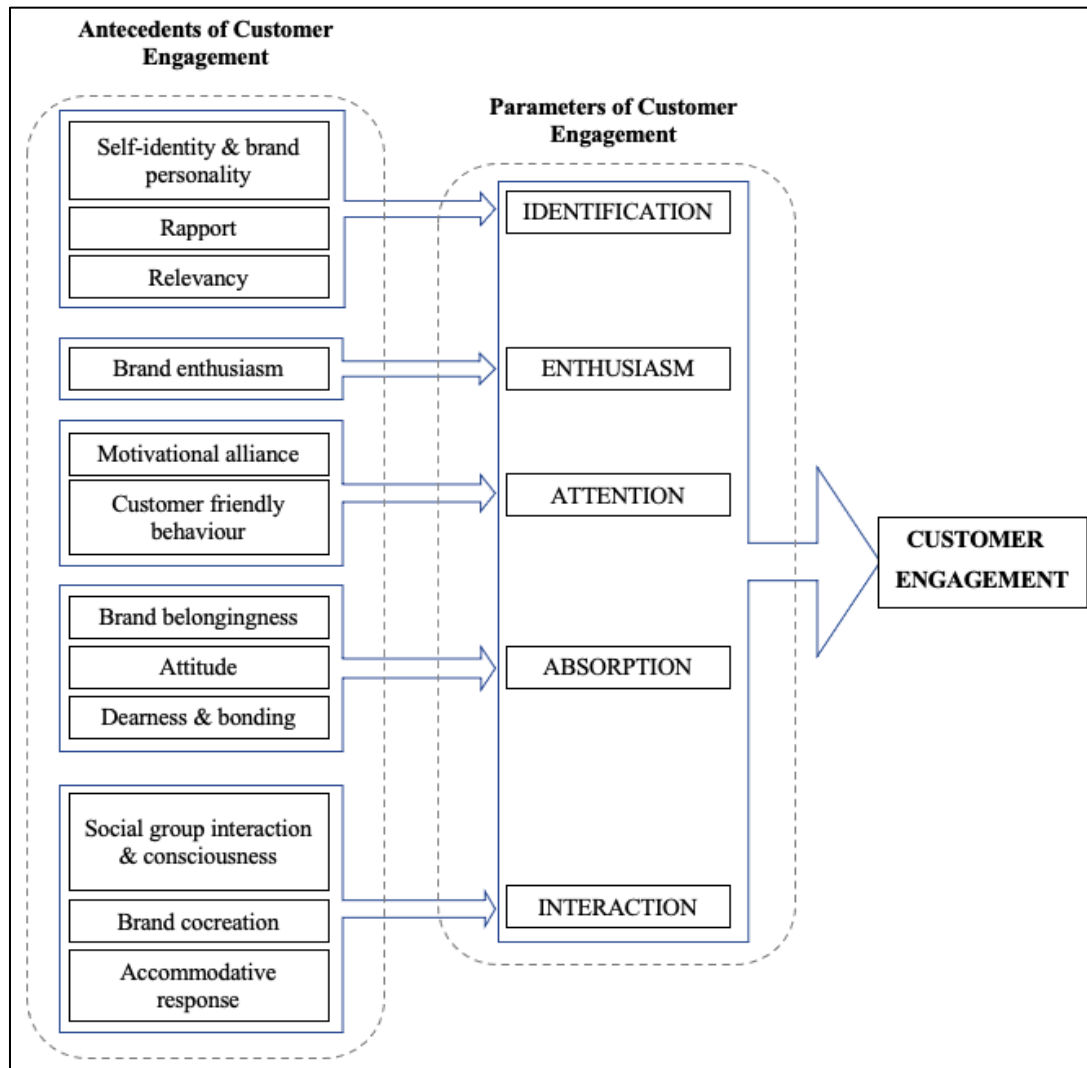
3.5. Instrument Design

A research instrument, scale, or questionnaire is a crucial part of the study. The researcher will not be able to gather the essential information for the study if an appropriate questionnaire is not created. There will be no reliable conclusions drawn without the right information. So, one of the foundations of good research is crafting the questionnaire to ask relevant questions. The present scale was meticulously developed bearing in mind the study's objectives. It would aid in data collection touching upon every angle of the study.

3.5.1. Questionnaire Sectioning

For the present study, the questionnaire for recording the respondents' responses is divided into three parts:

Part I: This section includes questions (first six questions of the questionnaire) that recorded the demographic details of the respondents. It had variables of age, gender, educational qualification, occupation, state and, Railway Zone, wherein the scales of questions were either dichotomous or multiple choice.

Part II: This section includes the screening questions (next five questions), that helped in qualifying a respondent for the present study. Five such questions were asked, which added to describing the respondents of the study. The first screening question clarified the fact whether the respondent had prior availed of the services of Indian Railways. Insinuating that the respondent was aware of the services provided by Indian Railways. The considered respondents for the study must have purchased a railway ticket for any destination from one of the sources of purchase (ticket counter, travel agent, travel website or IRCTC). Thus, the next two questions directed at the same were included, which helped in describing them as customers of Indian Railways. As the present study focuses on social media platforms it is necessary to know the exposure and awareness of the respondents to the social media platforms and were also aware of the social media handles of Indian Railways. Thus, the next two questions deal with the same in the form of multiple choice.

Part III: The last part had statements measuring the factors/parameters, and a five-point Likert scale was utilised to get responses from the respondents with 'strongly agree' being represented by 5, 'agree' represented by 4, 'neither agree nor disagree' being represented by 3, 'disagree' is represented by 2 and, 'strongly disagree' being represented by 1. The statements to measure the variables/factors/parameters/constructs were adapted from the literature, and the details of the said literature are illustrated in Table 3.1:

Table 3.1: Factors and sources of the statements

Factors	Literature adapted from
Identification	Gogoi, M. 2014; Ashforth and Mael, 1989; So et al., 2014
Enthusiasm	Vivek, 2009; Gogoi, M. 2014; So et al., 2014
Attention	Vivek, 2009; Gogoi, M. 2014

Absorption	Gogoi, M. 2014; So et al., 2014
Interaction	Gogoi, M. 2014; So et al., 2014; Wiertz and de Ruyter (2007); Algesheimer et al., 2005

3.5.2. Construction of the Questionnaire

Table 3.2 illustrates the number of questions/statements included in the three parts of the first draft of the questionnaire. The next stage in constructing the questionnaire was to seek the face validity of the same from academicians and industry professionals once the first draft had been finished.

Table 3.2: Elucidation of the questionnaire (Prior Face Validity)

Section of the questionnaire	Number of Questions/Statements
Part I (Questions related to demographic variables)	6
Part II (Screening questions)	5
Part III (Statements related to the factors/parameters)	36

Early feedback from academics and professionals in the field was integrated into the questionnaire's design. Either some statements were removed or others were altered to accommodate the changes made to the questionnaire. Part III of the questionnaire was revised to incorporate the feedback received, with a corresponding reduction in the number of questions. The revised and final details of the same are illustrated in Table 3.3.

Table 3.3: Elucidation of the questionnaire (After Face Validity)

Section of the questionnaire		Number of Questions/Statements
Part I (Questions related to demographic variables)		6
Part II (Screening questions)		5
Part III (Statements related to the factors/parameters)		29
Division of Part III		**Number of**
Factor	**Antecedent**	**Statements**
Identification	Self-identity & brand personality	3
	Rapport	2

	Relevancy	2
Enthusiasm	Brand Information	4
Attention	Motivational alliance	2
	Customer friendly behaviour	3
Absorption	Brand belongingness	2
	Attitude	2
	Dearness and bonding	2
Interaction	Social group interaction & consciousness	3
	Brand cocreation	2
	Accommodative esponse	2

3.6. Scope of the study

The present study is confined to the social media handles of Indian Railways, with exposure and awareness of these social media handles among the customers being a prerequisite for the study. Further, the customers' engagement data were collected from three Railway zones, viz., Eastern Railway, Northeast Frontier Railway and South Eastern Railway. It encompasses the states of West Bengal, Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh.

3.7. Sources of Data Collection

Both primary (survey questionnaire/instrument) and secondary data will be used in the present study. The secondary sources of data for the present study are mainly the website of Indian Railways, blogs, bookmarks, the internet, Academic Journals, published or unpublished thesis, magazines, newspapers and reference books etc.

Primary data – Survey questionnaire for measuring the customer engagement parameters.

Secondary data – Academic journals, published thesis, Website of Indian Railways for conceptual model formulation and streamlining the sampling technique.

3.8. Population

Based on the data provided by the Indian Railways Annual Report 2021 and, the limited movement due to the pandemic regulations, only three out of seventeen Railway Zones were considered for the study. These three zones are Eastern Railways, Northeast

Frontier Railways and South Eastern Railways and collectively represent the north-eastern part of India. Figure 3.2 denotes the sequence of streamlining the population for the study.

Figure 3.2: Flowchart to determine the population of the study

1	• Customers of Indian Railways.
2	• Customers belonging to the states of West Bengal, Sikkim, Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh, Meghalaya, and Mizoram, i.e., the three Railway zones of Eastern Railway, Northeast Frontier Railway and South Eastern Railways.
3	• Customers with minimum exposure to social media platforms of Facebook/Twitter and practices of customer engagement.
4	• Customers of Indian Railways who have purchased a Railway Ticket for any destination.

3.9. Universe

Due to the pandemic scenario which resulted to a limited movement and contact of individuals, only three Railway Zones for the study were selected. Geographically, the state of West Bengal was targeted, but as per the Railway Zone demarcation by the Indian Railways (based on their operations), West Bengal itself is divided into three zones viz., Eastern Railway, Northeast Frontier Railway and South Eastern Railways. Under these three zones the Northeast Frontier Railway Zone included the whole geographical states of the Northeast India i.e., Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh. Both Eastern Railways and South Eastern Railways included certain geographical areas of the neighbouring states of West Bengal. As these states had lesser geographical representation compared to West Bengal in Eastern Railway and South Eastern Railway zones, these states were not considered for the study. Thus, the final Railway Zones considered for the study were Eastern Railway, Northeast Frontier Railway and South Eastern Railways which

geographically encompassed the states of West Bengal, Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh.

Hence, the sampling universe includes the population of the nine states of West Bengal, Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh.

3.10. Sample size

Collecting data from the whole population is next to impossible considering the constraining factors of money, time, approachability, and other relevant resources. Thus, data were collected from a sample which was representative of the population under consideration. The sample size for the study was calculated keeping in mind the total population of the nine states, i.e., approximately 135,636,000, at a 95% confidence level and 4% margin of error. The confidence level here represents the range within which the respondents' responses will be expected. The margin of error is a percentage that shows how much our survey findings represent the population. The lower the margin of error, the closer we are to a precise answer. The sample size for the study was calculated using the Bayesian A/B Testing method.

$$\text{Sample Size formula} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

The above formula was applied to calculate the sample size, where,

z = z-score. The number of standard deviations in a given proportion is away from the mean.

p = standard of deviation. The confidence level that the population would select an answer within a certain range.

e = margin of error (percentage in decimal form). The percentage tells how much to expect the survey results to reflect the views of the overall population.

N = population size. The total number of people in the group you're trying to study.

As the confidence level is at 95%, its corresponding z-score is 1.96, for the study. Upon, calculation the proposed sample size for the present study was 601.

3.11. Sampling Technique

The sampling for the study was addressed under two sections. Convenience sampling method was used to identify the respondents of the study, due to the geographical proximity, availability, and willingness of the respondents (given the pandemic restrictions and permissions obtained from individual station/junction).

Section I

This section describes the Railway Zones and station/junctions of the study for data collection. Due to the pandemic scenario which resulted to a limited movement and contact of individuals, only three Railway Zones for the study were selected. Geographically, the state of West Bengal was targeted, but as per the Railway Zone demarcation by the Indian Railways (based on their operations), West Bengal itself is divided into three zones viz., Eastern Railway, Northeast Frontier Railway and South Eastern Railways. Under these three zones the Northeast Frontier Railway Zone included the whole geographical states of the Northeast India i.e., Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh. Both Eastern Railways and South Eastern Railways included certain geographical areas of the neighbouring states of West Bengal. As these states had lesser geographical representation compared to West Bengal in Eastern Railway and South Eastern Railway zones, these states were not considered for the study. Thus, the final Railway Zones considered for the study were Eastern Railway, Northeast Frontier Railway and South Eastern Railways which geographically encompassed the states of West Bengal, Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh. The following stages were adhered to identify the major stations/junctions and the distribution of respondents.

Stage 1 - On the basis of geographical areas, of the total seventeen Railway Zones, the considered zones of Indian Railways were Eastern Railway, Northeast Frontier Railway and South Eastern Railways (which was done due to the prevalent pandemic scenario and limited movement and contact brought about by lockdowns). The study covered the Indian states of West Bengal, Sikkim, Meghalaya, Assam, Tripura, Mizoram, Manipur, Nagaland, and Arunachal Pradesh.

Stage 2 - The major junctions and stations were identified based on the frequent train routes for both long-distance passenger and local passenger train routes. The junctions

and stations having a higher footfall of passengers, based on the Indian Railways Annual Report 2021, were only considered.

Stage 3 – According to table 3.4, there are a total of 1,063 stations and junctions under Eastern Railway, Northeast Frontier Railway and South Eastern Railways. The pandemic restrictions had lowered this number to seventy-three stations/junctions that were operational during that time. Of the identified seventy-three junctions and stations, twenty-seven major junctions and stations were selected based on passenger traffic. According to the data provided by the Indian Railways Annual Report 2021, the busiest year for the Indian Railways was 2011-12. According to the same report, suburban services and short-distance travellers drove most of the passenger traffic. A rising percentage of young individuals entering the job found train services inconvenient. The lengthy lines, packed trains, and dirty surroundings were found to be intolerable. Safety and security concerns and irregular timing were some of the prevailing issues. Most short-distance travellers and metropolitan office workers were ditching the trains for alternate transit options. Reserved travellers who travelled long distances and had no other alternatives than aeroplanes continued to grow. Most of the drop-in passenger services in the past fiscal year occurred in seven zones. This includes Eastern Railway (40.5 million), Northern Railway (26.7 million), Southern Railway (23.9 million), Northeast Frontier Railway (23.7 million), South Central Railway (23.7 million), and East Central Railway (17 million). This shows that the drop in passenger travel with Indian Railways was widespread and while factoring in the pandemic scenario of 2019-2022 there was expected to be a drastic drop in the response rate in all the three zones of Eastern Railway, Northeast Frontier Railway and South Eastern Railways.

Table 3.4 gives an overview of the states and number of stations/junctions currently present under the three zones of Eastern Railways, Northeast Frontier Railways and South Eastern Railways.

Table 3.4: Overview of the number of stations/junctions under the three zones of Indian Railways and the number of stations/junctions considered for the study

Railway Zone	Total Number of Stations/junctions	States Under the Zone	Number of stations/junctions considered for the study based on the passenger traffic	States considered for the study
Eastern Railways	212	Parts of West Bengal, Jharkhand and Odisha	6	West Bengal
Northeast Frontier Railways	547	Sikkim, Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh, Meghalaya, and Mizoram and, parts of West Bengal and Bihar	13	West Bengal, Sikkim, Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh, Meghalaya, and Mizoram
South Eastern Railways	304	Parts of Jharkhand, Odisha and West Bengal	8	West Bengal

Figure 3.3 illustrates the segregation of the junctions/stations of each Railway Zone from where data was collected. Due to the pandemic scenario and the limited long-distance passenger trains, there was a lower number of stopage in between the beginning and ending stations. Based on it, the stations/junctions which had the most passenger traffic were selected for the study. Twenty-seven such stations were identified from the data provided by the Indian Railways Annual Report 2021.

Figure 3.3: Junction/Station segregation based on Railway Zone

	INDIAN RAILWAYS	
Eastern Railways	**Northeast Frontier Railways**	**South Eastern Railways**
• Howrah Junction (HWH)	• New Jalpaiguri Junction (NJP)	• Kharagpur Junction (KGP)
• Asansol Junction (ASN)	• New Cooch Behar Junction (NCB)	• Midnapore (MDN)
• Durgapur Railway Station (DGR)	• Alipurduar Junction (APDJ)	• Santragachi Junction (SRC)
• Sealdah Railway Station (SDAH)	• Guwahati (GHY)	• Panskura Junction (PKU)
• Malda Town Station (MLDT)	• Kamakhya Junction (KYQ)	• Shalimar (SHM)
• New Farakka Junction (NFK)	• Lumding Junction (LMG)	• Tamluk (TMZ)
	• Dibrugarh (DBRG)	• Haldia (HLZ)
	• Silchar (SCL)	• Digha (DGHA)
	• Dimapur (DMV)	
	• Ghumto Railway Station (GMTO)	
	• Bhalukpong Railway Station (BHNG)	
	• Dharmanagar Railway Station (DMR)	
	• Bhairobi railway Station (BHRB)	

Section II

For selecting the respondents, a non-probability convenience sampling technique was adopted for the current exploratory study (Tull & Hawkins, 1993, p. 544). However, an effort was made to include respondents across different demographic variables to make the sample representative. Passengers waiting on the platforms for their respective trains were then approached with a structured questionnaire and their responses were recorded through online mode. Hence, convenience sampling was

adopted to approach such passengers and those who were willing to participate in the study. The sample was collected from the states of West Bengal, Sikkim, Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh, Meghalaya, and Mizoram.

As the sample size for the research study was nearly 601 respondents, convenience sampling was administered to collect data from the three Railway Zones according to Table 3.5. The total sample size was initially divided into three groups (as there are three Railway Zones). Following which the resultant individual sample division was divided by the number of station/junctions considered in each individual Railway Zone.

Table 3.5: Segmentation of the sample based on zones, state and, station/junction.

Railway Zone	States	Station/Junction	No. of Respondents
Eastern Railways	West Bengal	Howrah Junction (HWH)	32
		Asansol Junction (ASN)	32
		Durgapur Railway Station (DGR)	32
		Sealdah Railway Station (SDAH)	32
		Malda Town Station (MLDT)	32
		New Farakka Junction (NFK)	32
Northeast Frontier Railways	West Bengal and Sikkim	New Jalpaiguri Junction (NJP)	17
		New Cooch Behar Junction (NCB)	16
		Alipurduar Junction (APDJ)	16
	Assam and Meghalaya	Guwahati (GHY)	16
		Kamakhya Junction (KYQ)	16
		Lumding Junction (LMG)	16
		Dibrugarh (DBRG)	16
		Silchar (SCL)	16
	Nagaland and Manipur	Dimapur (DMV)	16

	Tripura	Dharmanagar Railway Station (DMR)	16
	Arunachal Pradesh	Ghumto Railway Station (GMTO)	16
		Bhalukpong Railway Station (BHNG)	16
	Mizoram	Bhairobi railway Station (BHRB)	16
South Eastern Railways	West Bengal	Kharagpur Junction (KGP)	25
		Midnapore (MDN)	25
		Santragachi Junction (SRC)	25
		Panskura Junction (PKU)	25
		Shalimar (SHM)	25
		Tamluk (TMZ)	25
		Haldia (HLZ)	25
		Digha (DGHA)	25

The data was collected through online (Google forms) mode as per the comfort level of the respondents and the no contact guidelines of the pandemic situation. The data collection was continued until respondents encompassed all the states considered for the study. A total of 838 prospective respondents were approached. Out of those, 601 respondents had completed the questionnaire response. As reiterated prior, the data was collected from respondents belonging to the nine states considered for the study.

3.12. Content Validity of the questionnaire

To assess content validity, authorities with an understanding of the construct's subject were asked. Through these experts' opinions on the contents, wordings, and whether questions measured the construct, the statements' efficiency was determined. With their guidance, the study's construct was revised. Brod et al. (2009) mention a standardised questionnaire's content validity has two goals. First, to determine whether the scale is trustworthy and meaningful to participants. Second, to determine whether the measure covers all locations. Before presenting the survey questions, they were tweaked and amended based on the study's concept. On the basis of their comments, the survey items are modified/reconstructed.

These items and statements were validated by the senior officials of the three Railway Zones (Northeast Frontiers Railways, Eastern Railways and South Eastern Railways), who handled and posted on the social media handles of Indian Railways. As such the questionnaire was presented to two General Managers and fourteen Divisional Railway Managers (ADRM) to ensure that responses will give the correct direction in this research. A summary of the officials is represented in Table 3.6.

Table 3.6: Designation of officials who responded to the questionnaire validation.

Sl. No.	Name	Designation
1	Shri S.K.Choudhury	Divisional Railway Manager (DRM)
2	Shri Dilip Kr. Singh	Divisional Railway Manager (DRM)
3	Shri. V.K. Srivastava	Divisional Railway Manager (DRM)
4	Shri J.S.Lakra	Divisional Railway Manager (DRM)
5	Shri Bijaya Kumar Mishra	Divisional Railway Manager (DRM)
6	Shri Manish Jain	Divisional Railway Manager (DRM)
7	Mr. Sheelendra Pratap Singh	Divisional Railway Manager, Eastern Railway, Sealdah (DRM)
8	Shri Permanand Sharma	Divisional Railway Manager/Asansol (DRM)
9	Mr. Yatendra Kumar	Divisional Railway Manager / Malda (DRM)
10	Sri Vijay Kumar Sahu	DRM Chakradharpur
11	Radhey Raman	Divisional Railway Manager(SAG) (DRM)
12	Sanjeev Kishore	Divisional Railway Manager(SAG) (DRM)
13	P.K. Jain	Divisional Railway Manager(SAG) (DRM)
14	Prasant Mishra	Divisional Railway Manager(SAG) (DRM)
15	Shri Anshul Gupta	General Manager (GM)
16	Chahatay Ram	General Manager (HAG+) (GM)

All professionals received a questionnaire copy. Once they responded with "keep," "reject," or "modify" for different statements/items, the experts' opinions were followed. As suggested, some statements were amended or eliminated, but most remained. After incorporating recommendations into the new questionnaire, pilot testing followed. Respondents' answers tested the questionnaire's internal validity.

3.13. Pilot Study

Next, the questionnaire was pretested to establish internal consistency. As such, 10% of respondents completed a prototype questionnaire for clarity (Bajpai 2011; Connelly 2008). Respondents were requested to fill out the questionnaire to remove problems. The prototype questionnaire's phrasing was also revised. Thus, the final research questionnaire document was created.

In the next section of the study, the internal reliability is measured in order to get authentic and right results. Cronbach's alpha measures an instrument's internal reliability. If Cronbach's alpha is less than 0.7, it's regarded as unacceptable (Cortina, 1993). All factor/parameter in this study was Cronbach's alpha-tested. Internal reliability data was acquired from 60 respondents, who largely represented the study's sample frame.

Table 3.7: Internal Consistency (Cronbach alpha) (Reliability Analysis)

VARIABLES	CRONBACH ALPHA
Identification	0.819
Enthusiasm	0.856
Attention	0.743
Absorption	0.850
Interaction	0.809

As the internal reliability of the instrument was established at more than 0.7 criteria (Table 3.7) of Cronbach's Alpha, the next step to collect data from the respondents was done**.**

3.14. Statistical tools

Appropriate statistical tools should be used to analyse data and to further interpret the result. Table 3.8 and Table 3.9 illustrates the statistical tools used in the present study.

Table 3.8: Objective-wise statistical tool of the study

Sl. No.	OBJECTIVE	TOOL AND TECHNIQUE
1	To identify a customer engagement framework for Indian Railways through Bibliometric Analysis.	Bibliometric analysis
2	To determine the factors affecting customer engagement towards the services of Indian Railways on social media handles.	Factor Analysis
3	To study the influence of demographics on customer engagement towards the services of Indian Railways on social media handles	Demographic analysis, ANOVA, Pearson Correlation Coefficient

Table 3.9: Hypotheses-wise statistical tool of the study

The objective of our Study	Proposed Hypotheses	Statistical Tools adopted
Objective 1: To identify a customer engagement framework for Indian Railways through Bibliometric Analysis.		Bibliometric Analysis
Objective 2: To determine the factors affecting customer engagement towards the services of Indian Railways on social media handles.	$H1_0$: There is no significant difference among the respondents belonging to different "Railway Zones" regarding customer engagement on social media handles of Indian Railways.	Factor Analysis

Objective 3: To study the influence of demographics on customer engagement towards the services of Indian Railways on social media handles.	**H2$_0$:** There is no significant difference among the respondents belonging to different "Railway Zones" regarding customer engagement on social media handles of Indian Railways.	
	H3$_0$: There is no difference in the population means of all gender groups regarding customer engagement on social media handles of Indian Railways.	
	H4$_0$: There is no difference in the population means of all educational qualification groups regarding customer engagement on social media handles of Indian Railways.	One-way ANOVA
	H5$_0$: There is no difference in the population means of all occupational groups regarding customer engagement on social media handles of Indian Railways.	
	H6$_0$: There is no difference in the population means of all Railway Zones regarding customer engagement on social media handles of Indian Railways.	
	H7$_0$: There is no correlation between the factors of customer engagement for Eastern Railways.	
	H8$_0$: There is no correlation between the factors of customer engagement for Northeast Frontier Railways.	Pearson Correlation Coefficient
	H9$_0$: There is no correlation between the factors of customer engagement for South Eastern Railways.	

4. DATA ANALYSIS AND INTERPRETATION

The term "datum" is used to describe data in its most basic form, without any sort of organization or interpretation. It's impossible to exhaust the universe's worth of data, yet there are data everywhere. The term "data analysis" refers to the method of assessing information by breaking it down into its constituent parts and analyzing them logically.

4.1. OBJECTIVE 1 - To identify a customer engagement framework for Indian Railways through Bibliometric Analysis.

The bibliometric analysis measures the quality and trends of knowledge. This method studies collected conceptions, not concepts themselves. Bibliometric analysis is useful for deciphering and mapping the cumulative scientific knowledge and evolutionary nuances of well-established fields by making sense of large volumes of unstructured data in rigorous ways. It's needed to manage scientific research and formulate policies. The researchers analysed regional research findings to international standards or documented research history using the bibliometric method. As such, this approach was up taken for the current research so as to map the different existing models for measuring customer engagement and to come up with a model of the same for measuring the customer engagement by Indian Railways towards their social media handles.

4.1.1. Data Collection

Digital Science's Dimensions research data platform was used to collect bibliographic information on customer engagement on social media handles of government and public services. This platform includes grants, articles, citations, clinical trials, and patents. This analysis covered 2010-2022.

In this work, we used VOSviewer to compare keywords and bibliographic mappings. "Altimetric" measures research's influence by looking at how it's discussed on social media. Altimetric quantify the impact of individual research papers. No prior research has employed altimetric for bibliometrics or to assess government and public service consumer interaction on social media handles. Here's how we adapted SPAR-4-SLR for systematic literature reviews as depicted in Figure 4.1.

Due to its stringency, the SPAR-4-SLR review protocol was chosen over other protocols like the PRISMA protocol, which was developed in the field of pure science. SPAR-4-SLR consisted of three distinct phases: preparation, execution, and review (Figure 4.1).

For this study, the time frame considered is 2010-2022. Such a time frame was considered as there was a substantial rise in studies related to government services concerning service quality, marketing and most important the acceptance and implementation of digital strategies and digital services within the government services.

Figure 4.1: Adapted SPAR-4-SLR Protocol Stages
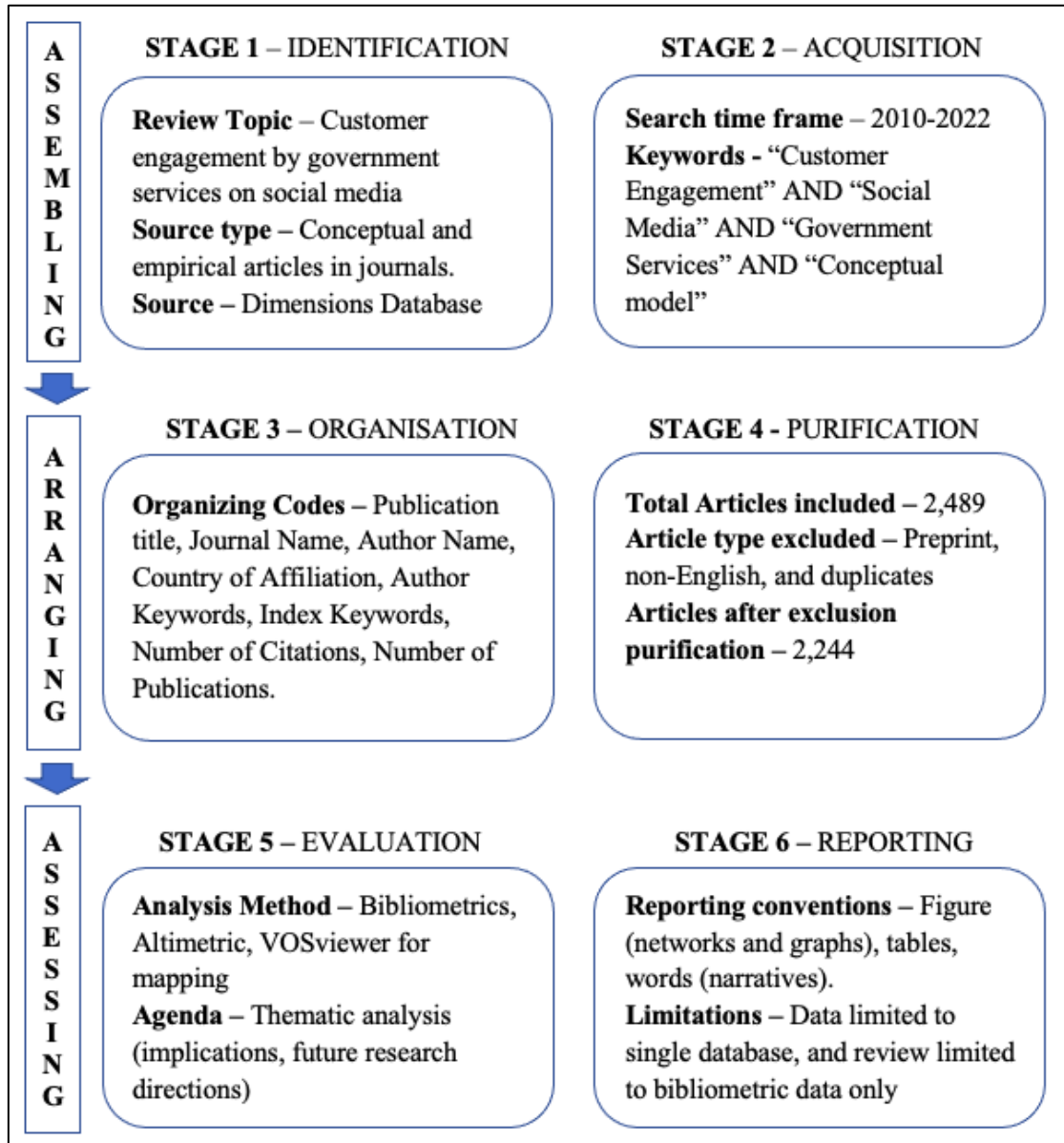
To get started, the term "Customer Engagement" was used to search the database, yielding 29,193 articles. Further search with "Social Media" keywords reduced the number of articles to 18,044. The study's final keywords were "Customer Engagement," "Social Media," "Government Services," and "Conceptual model". Table 4.1 illustrates

the summary of the keyword search and the initial number of articles for further analysis (Stage 2 of Figure 4.1).

Table 4.1.1: Summary of articles based on keyword search (Stage 2 of Figure 4.1)

Keywords	No. of Articles
"Customer Engagement"	29,193
"Customer Engagement" AND "Social Media"	18,044
"Customer Engagement" AND "Social Media" AND "Government Services"	6,747
"Customer Engagement" AND "Social Media" AND "Government Services" AND "Conceptual Model"	2,489

The data retrieved was further screened based on language and the removal of duplicated articles (Stage 4 of Figure 4.1). Table 4.1.2 elucidates the Stages 1,2,3 and, and 4 of the SPAR-4-SLR protocol adapted for this study. Thus in Stage 1 – The Dimensions database was searched using the initial keyword of "Customer Engagement". It listed a total of 29,193 articles. Stage 2 – The articles were then screened using the specific keywords mentioned in Table 4.1.1. This limited the article's number to 2,489. Stage 4 – Finally the duplicates were removed, articles in the English language were considered and the time period was set within 2010-2022, which yielded the final set of articles for the study. A final set of articles for bibliometric analysis was found to be 2,244 after the whole process. Table 4.1.2, further illustrates the retrieval process.

Table 4.1.2: Data retrieved after screening based on language and removal of duplicated articles based on the SPAR-4-SLR protocol

Stage 1 - Identification	Documents retrieved from the Dimensions database using only the keyword "Customer Engagement"	29,193
Stage 2 - Acquisition	Screened documents on the basis of the selected Keywords as seen in Table 4.1.1.	2,489
Stage 4 - Purification	Removal of Duplicates and limiting the study to the time period of 2010-2022 and English language	2,244
	Final set of articles for bibliometric analysis	2,244

4.1.2. Distribution of articles

4.1.2.1. Year-wise distribution of articles

If we break down the publications by year, we find that 2018 had the highest number of publications related to this research area. A summary of article distribution is depicted in Table 4.1.3, with its graphical representation shown in Graph 4.1.

Table 4.1.3: Trends of publication as year-wise distribution

Publication Year	Publication No.
2010	16
2011	47
2012	82
2013	75
2014	170
2015	121
2016	139
2017	255
2018	699
2019	190
2020	203
2021	207
2022	40

In the past decade, research has steadily increased until the year 2018, which may be contributed to the widespread adoption of digital platforms by government agencies for information dissemination. As the keyword search was limited to only "Conceptual model", the sharp decline following 2018 depicts the adoption and inclusion of various social media.

Graph 4.1: Year-wise distribution of publications
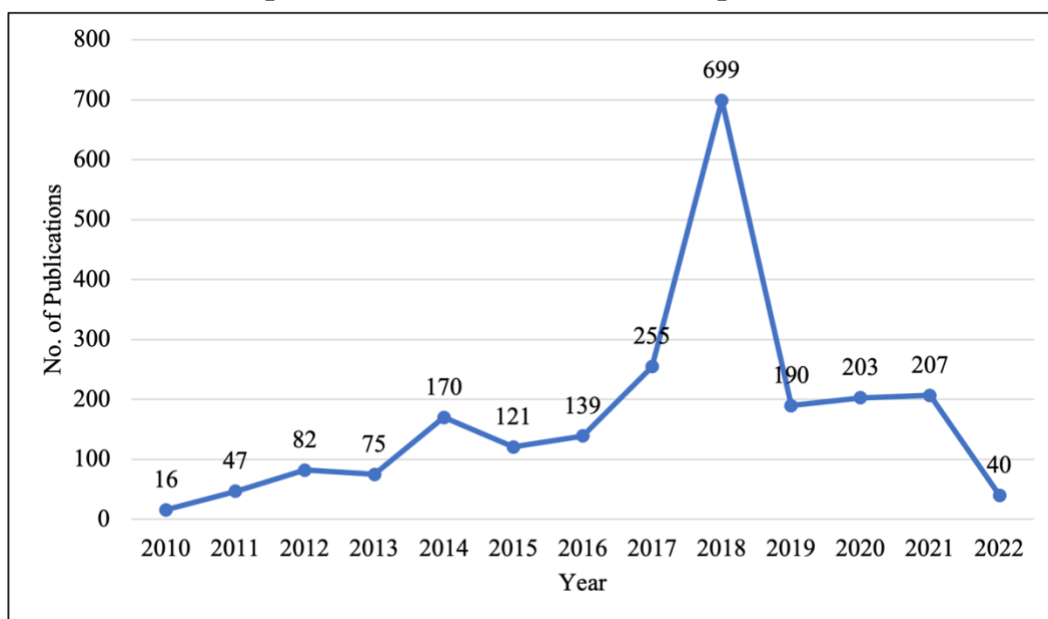
4.1.2.2. Country-wise distribution of articles

It has been suggested that a breakdown of published works by country is crucial for gauging the global fervour of scientific research.

Table 4.1.4: Trends of publication as country-wise distribution

Sl. No.	Country	Total Citations
1	United States	4997
2	Spain	1406
3	United Kingdom	487
4	Netherlands	439
5	Greece	412
6	Mexico	369
7	Canada	368
8	Italy	312
9	South Korea	279
10	Denmark	264
11	Malaysia	244
12	Australia	241
13	India	196
14	Germany	168
15	China	157

Table 4.1.4 shows that the top 15 nations with the highest number of citations are all either country that has conducted research on this topic or countries that have contributed writers. So far, the United States has reported the highest number of citations, followed by Spain and the United Kingdom.

4.1.2.3. Journal-wise distribution of articles

The purpose of this category was to identify the academic journals that most often publish studies on Customer engagement in social media platforms related to government services. As more than fifty such journals were found for this study the top fifteen journals are included in Table 4.1.5.

Table 4.1.5: Trends of publication as journal-wise distribution

Journal Name	No. of archived Articles
Government Information Quarterly	3373
Public Administration Review	1440
Choice	1226
Lecture Notes In Computer Science	535
SSRN Electronic Journal	416
Journal Of Public Administration Research And Theory	380
Computers In Human Behavior	374
Information Polity	332
Public Relations Review	331
Mis Quarterly	324
New Media & Society	314
Transforming Government People Process And Policy	306
The American Review Of Public Administration	290
Public Administration	287
Information Communication & Society	262

Both Government Information Quarterly and Administrative Review are among the most-cited academic periodicals. Nonetheless, it is important to highlight that most of these journals are government journals and administrative review journals.

4.1.2.4. Areas of Research

The summary represented in Graph 4.2 makes it abundantly evident that most of the research has been done in the realm of human society, specifically concerning the implementation of policies for customers and the implementation of digital platforms on which these policies are disseminated. Subsequently, research focused on social media platforms, specifically on how to address government and user security concerns were conducted. Even while it was expected that government agencies would utilize social media for information transmission, it has been used to increase knowledge about different sectors, the health and well-being of residents, and how to communicate with them.

Graph 4.2: Outline of Different Research Areas
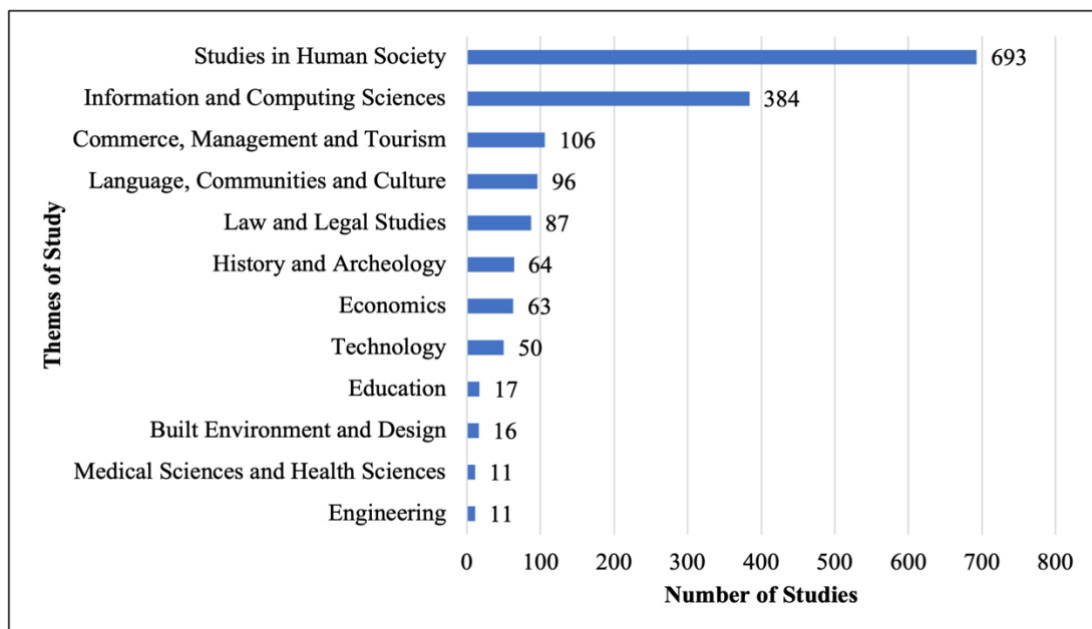
The highest number of studies has been conducted in respect to the human society at large (693), followed by information and computing sciences (384), and commerce, management and tourism (106). Also studies have been conducted in language, communities and culture (96), law and legal studies (87), history and archaeology (64), economics (63), technology (50), education (17), built environment and design (16), medical sciences and health sciences (11) and engineering (11).

4.1.3. Bibliometric Coupling

Bibliographic coupling employs citation analysis to determine document similarity. Bibliographic coupling happens when two works cite the third work. It suggests that the two works may be related.

4.1.3.1. Bibliometric coupling based on documents

Bibliographically coupled documents are those that share a common citation source. A measure of the "coupling strength" between two papers is the number of shared citations between them. For this study, the minimum of articles referencing the same article was capped at ten. Out of a total of 2244 articles, only 403 such articles were substantial enough to warrant capping. Table 4.1.6 displays the top ten most referenced articles on this kind of bibliometric coupling.

Table 4.1.6: Top ten most bibliometric coupled documents. (Threshold = 10)

Sl. No.	Document	Citations
1	Stamati (2015)	91
2	Arshad (2020)	74
3	Medaglia (2017)	62
4	Depaula (2018)	60
5	Hollebeek (2017)	25
6	Centeno (2017)	14
7	Gupta (2017)	13
8	Narayanan (2017)	13
9	Bhat (2017)	13
10	Feltosa (2017)	13

Accordingly, among the top three the article by Stamati, 2015 has been referenced in 91 articles, followed by Arshad, 2020, which is referenced in 74 articles and then by Medaglia, 2017, which is referenced in 62 articles.

4.1.3.2. Bibliometric coupling based on sources

To establish the bibliometric coupling of sources, a capped threshold of five documents referencing the same source and having a minimum of ten citations was considered. A total of 401 articles were found to have five same referenced sources, but only 36 such

articles were present with ten citations. Table 4.1.7 shows the top ten referenced sources.

Table 4.1.7: Top ten most bibliometric coupled sources. (Threshold = minimum 5 documents with 10 citations)

Sl. No.	Source	Documents	Citations
1	Global Encyclopaedia of Public Administration	66	4886
2	Public Administration and Information Technology	41	584
3	SSRN Electronic Journal	35	164
4	Contemporary Issues in Social Media	15	109
5	Routledge Handbook on information technology in Government	13	53
6	Transforming Government People	11	493
7	Information Polity	10	496
8	International journal of Electronic	7	86
9	International Journal of Public Administration	7	70
10	Public Management Review	5	95

Describing the top three, the most cited source in the documents was that of the Global Encyclopaedia of Public Administration (total citations of 4886), which was cited 66 times within the 2244 selected documents. It was followed by Public Administration (total citations of 584), with 41 citations within the 2244 documents and SSRN Electrical Journal (total citations of 164 citations) with 35 citations within the 2244 documents.

4.1.3.3. Bibliometric coupling based on authors

When the reference lists of two authors' combined works include a reference to the same document, we say that they are bibliographically coupled, and the strength of this coupling grows as the number of citations to other documents they share increases. If we define an author's cumulative reference list as the multiset union of the publications on which they have collaborated, then we can say that the

author bibliographic coupling strength of two writers (or, more correctly, of their collected works) is equal to the size of the multiset intersection of their cumulative reference lists.

A limit of five documents, with ten citations, was set i.e., documents with five collaborating authors and having a minimum of ten citations. A total of 20 authors were deemed to have achieved this threshold. Table 4.1.8 enlists the top ten such authors.

Table 4.1.8: Top ten most bibliometric coupled sources. (Threshold = minimum 5 authors with 10 citations)

Sl. No.	Source	Documents	Citations
1	Feenaghty, B.	28	198
2	Gerrand, P	28	22
3	Reddick, Christopher G	14	650
4	Gil-Garcia, J.R.	10	776
5	Bolivar, M	7	60
6	Gusuela, B	6	103
7	Metallo, C	6	98
8	Janssen, M	6	192
9	Khan, G. F.	5	211
10	Nam, T	5	328

The most bibliometric coupled author was B. Feenaghty (Executive Editor, Telecommunications Journal of Australia) with 28 publications, and 198 citations followed by P. Gerrand (from the University of the Watersrand) with 28 publications, 22 citations and then by Christopher G Reddick (from The University of Texas at San Antonio) with 14 publications and 650 citations.

4.1.4. Co-citation Analysis
As a means of defining the backbone of customer engagement on social media platforms of government services research, a co-citation analysis was performed.

4.1.4.1. Co-cited references
This section identifies and categorises highly referenced articles that are used as references by articles studying customer engagement on government social media

handles. Thus, the groups of related publications uncovered by a co-citation analysis are a window into the development of customer engagement study in this research area.

Using co-citations, we can see that there are three main areas of study that provide theoretical support for articles considered for the study: consumer brand community engagement; customer engagement concepts, execution, and models; and online and digital customer engagement. Due to the large number of cited articles in this review, we set the criterion that a reference is only considered for inclusion if it has been cited by at least 20 articles. There are 53 articles about customer engagement that have been cited more than 20 times by articles about customer engagement on social media platforms of government services, and this network is depicted graphically in Fig. 4.2.

Figure 4.2: Co-citation based on references
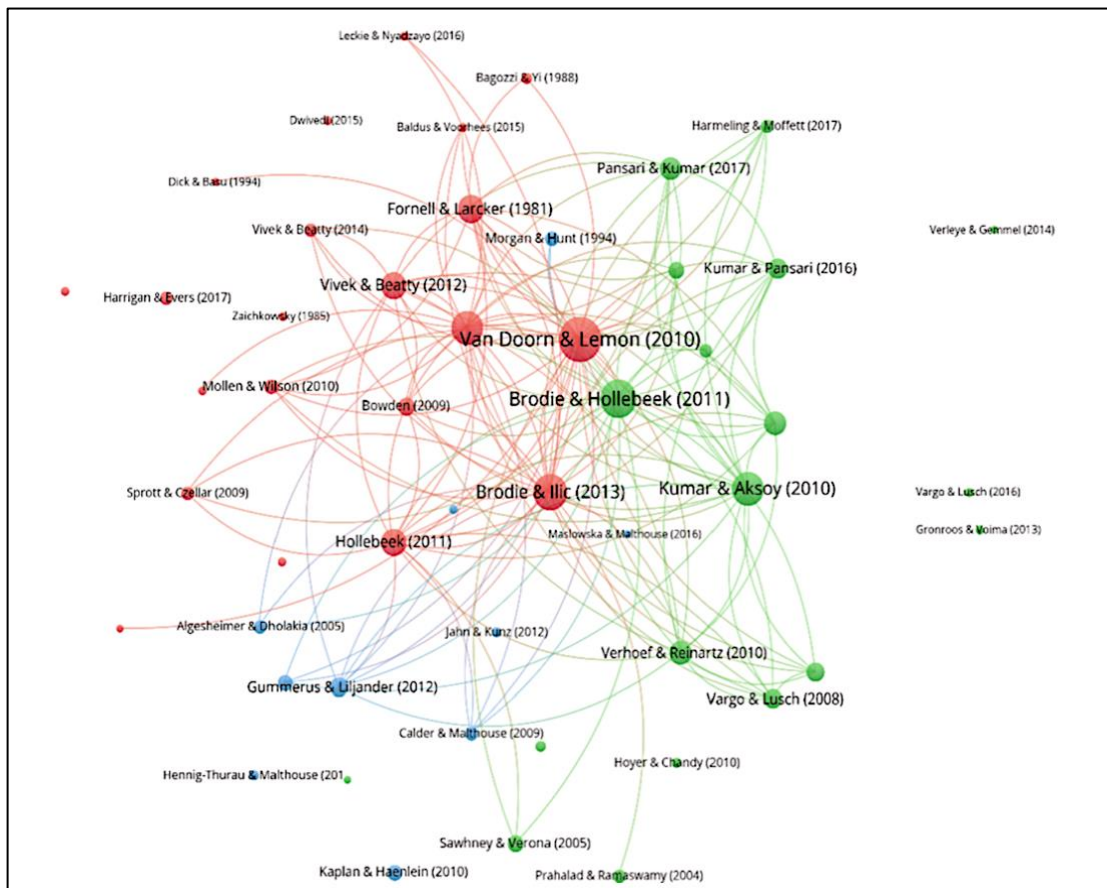
Source: VOSviewer. Author's representation. **Notes:** In this network visualisation, the size of the nodes represents the proportional number of citations received by the article represented by that node; larger nodes signify more citations. The proximity of nodes reflects the degree of similarity of papers highly mentioned by other articles; the stronger the relationship between nodes, the higher the

similarity of customer engagement articles highly cited by other articles in the considered field of study.

Red cluster - Consumer Brand Community Engagement

The first set is comprised of communication expert pieces focusing on consumer-brand community involvement. The cluster's publications offered theoretical and empirical insights into the causes and effects of customer engagement in brand communities. Insights on how brands might develop customer engagement and cultivate loyal customers were provided through the lens of commitment, involvement, and trust, which lay the groundwork for multidimensional and dynamic research on customer engagement. Studies in this subfield of customer engagement have been undertaken primarily by Bowden (2014), Brodie et al. (2013), Hollebeek (2011a), Mollen and Wilson (2010), Van Doorn et al. (2010), and Vivek et al. (2014), all of whom are considered to be customer engagement experts. A professional's perspective on customer engagement in the digital realm was provided by Mollen and Wilson (2010); the manifestations of customer engagement behaviour were revealed from the customer, brand, and societal perspectives by Van Doorn et al. (2010).

Green cluster - Customer Engagement Concepts, Execution, And Models

The second set of related references covers the concepts, execution, and models of consumer engagement in the context of customer engagement as a whole concept. These articles analysed the theoretical viewpoints and empirical findings of customer engagement's concepts, execution, and models, as well as the outcomes that organizations face as a result of engaging with consumers, both internally (employees) and externally (clients). Scholars such as Brodie et al. (2011), Kumar and Pansari (2016), Kumar et al. (2010), Pansari and Kumar (2017), Verhoef et al. (2010), and Vargo and Lusch (2010) contributed significantly to the customer engagement studies in this subfield. From the service-dominant logic and relationship marketing views that are so important to businesses, Brodie et al (2011) and Vargo and Lusch (2009) established the groundwork for customer engagement, while Kumar et al. (2010) elucidated the elements of customer engagement value for customers and companies.

Blue cluster - Online And Digital Customer Engagement

The third group comprises references to consumer engagement through the use of technology and the web. Several studies have demonstrated the positive effects of customer engagement on audiences, including those by Gummerus et al. (2012), Jahn et al. (2012), and Kaplan and Haenlein (2010). While Calder et al. (2009) showed that online advertising (including social media) is beneficial in boosting customer engagement, Algesheimer et al. (2005) emphasised the significance of social influence in constructing consumer community engagement. Scholars including Algesheimer, Dholakia, and Herrmann (2005), Calder, Malthouse, and Schaedel (2009), Gummerus et al. (2012), Jahn and Kunz (2012), and Kaplan and Haenlein (2010), were primarily responsible for compiling the research in this cluster.

4.1.4.2. Co-cited journals

The nature of journal contributions to customer engagement on social media platforms of government services research is further illuminated by the network of journal research clusters in Figure 4.3. Network analysis reveals six distinct groups, each of which represents a different kind of contribution to a publication.

Figure 4.3: Co-citation based on journals

Source: VOSviewer. Author's representation. **Notes:** For each journal, the size of the nodes represents the proportional number of citations its articles have earned; larger nodes represent more citations. If two journals are linked, then the

articles they quote from each other are likely to be related; if two journals are clustered closely together, then the articles they cite from each other are much more likely to be related.

Green cluster – Government data

The most prominent cluster of co-cited journals includes publications related to government data and related topics. It includes prominent journals such as Government Information Quarterly, The American Review of Public Administration, Journal of Urban Technology, Journal of Information Technology and System Dynamics Review.

Yellow cluster – Politics

The second most prominent cluster of journals deals with political studies. This cluster includes journals like Public Administration, Policy Sciences, The Journal of Politics, the British Journal of Political Science, and the Journal of European Public Policy.

Cyan cluster – Public Administration

The next most prominent cluster includes studies related to public administration and related areas. It includes prominent journals like Public Administration Review, Public Relations Review, Journal of Public Affairs, and Business Society.

Red cluster – Ethics

This cluster of journals includes articles related to the ethics of government policies and services. It clubs together prominent journals of Choice, American Political Science Review, The Lancet, Journal of Business Ethics, Administrative Science Quarter and Public Choice.

Blue cluster – Marketing Research and Information Technology

Studies related to marketing research in the domain of government services and policies is represented by the blue cluster. It co-cites journals like Behaviour and Information Technology, Journal of Marketing, Journal of Marketing Research, Information Systems Research, Strategic Management Journal and, Marketing Science.

Purple cluster – Social Sciences

The journal included in this cluster includes articles related to the social science aspect of government policies, its impacts and analysis. It includes journals like Policy &

Internet, Ecological Economics, Antipode, Urban Studies and, Progress in Human Geography.

4.1.4.3. Keyword co-occurrence

A keyword co-occurrence analysis was undertaken to define the knowledge generation of customer engagement on social media platforms of government services research. This approach clusters writers' article terms by subject similarity. The analysis revealed six groupings of customer engagement on social media platforms of government services research: customer engagement as a tool to impact consuming behaviours, customer engagement in social media, customer engagement as a strategy to gain customers, variances in consumer engagement behaviour, customer relationship management via customer engagement, and customer engagement in electronic commerce. Figure 4.4 shows the network between the six clusters, which contains 73 terms from at least fourteen government services publications on social media consumer involvement. Each cluster's explanation is built on shared meanings, where keywords are structured to give a cohesive narrative explaining the cluster's core and breadth. Establishing the requirement that keywords will be included if they occur in at least five related articles helps select a realistic set of clusters for network visualisation based on how numerous or notable cluster keywords are in the dataset, which is important owing to the magnitude of terms in this analysis.

Figure 4.4: Article-keyword co-occurrence
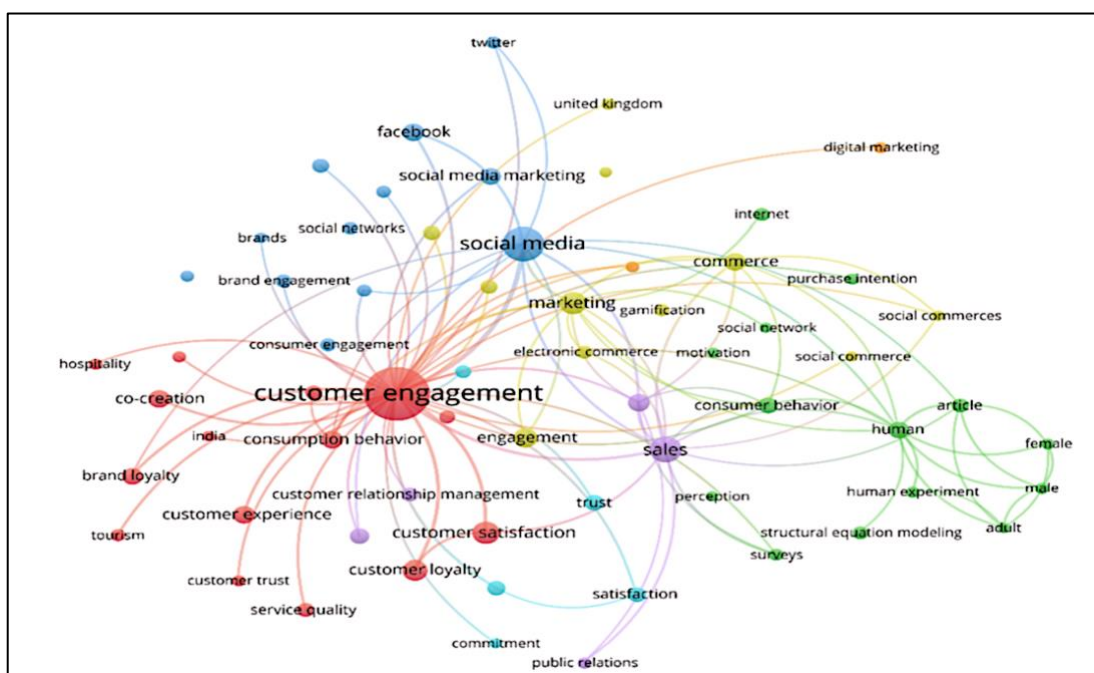
Red cluster - Customer Engagement As A Tool To Impact Consuming Behaviours

The first cluster consists of articlesvthat focus on customer interaction to affect consuming experiences. The co-occurrence of terms in this cluster suggests that research findings in this cluster study how "customer engagement" may influence "customer experience" and their "consumption behaviour", including "customer satisfaction" and "customer loyalty" when companies participate inv"co-creation" with "service quality" in diverse sectors such as "hospitality" and "tourism" in nations such as India.

Blue cluster - Customer Engagement In Social Media

The second set of articles addresses the topic of social media interaction with customers. Keywords in this cluster imply that the articles within explore how "brands" might use "social networks" to boost "brand engagement," "customer engagement," and "social media marketing" on platforms like "Facebook" and "Twitter".

Cyan cluster - Customer Engagement As A Strategy To Gain Customers

Articles that use customer engagement as a means to increase client retention make up the third group. The co-occurrence of terms in this cluster suggests that studies in this cluster consider customer engagement as a strategy to foster "customer satisfaction" and "trust" in a bid to ensure consumer "commitment" toward their businesses.

Green cluster - Variances In Consumer Engagement Behaviour

The fourth group contains pieces that focus on variations in customer interaction strategies. Studies in this cluster share an interest in dissecting gender differences in "consumer behaviour," such as "human" "perception," "motivation," and "purchase intention," among "female" and "male" "adult," including as it unfolds over "social network" on the "internet," as indicated by the co-occurrence of keywords within that cluster.

Purple cluster - Customer Relationship Management Via Customer Engagement

Based on the co-occurrence of keywords, it appears that the studies in this cluster view customer engagement as an aspect of "customer relationship management," which may take the form of "public relations" and may make use of "artificial intelligence" to translate such engagemen into "sales." Managing relationships with clients is the topic of the fifth group of articles.

Yellow cluster - Customer Engagement In Electronic Commerce

In the sixth group of articles, researchers analyse the role of customers in online stores. Studies in this cluster have a focus on "consumer engagement" as a "marketing" approach for "electronic commerce" and "social commerce," which might take the shape of "gamification," using lessons from nations like the United Kingdom.

4.1.5. Identified Models from bibliometric analysis

The following previous theories and models of customer engagement were considered for the conceptual model development for the present study:

1. A Conceptual Framework for the Process of Engagement (Bowden, 2009a)
2. Conceptual model of customer brand engagement (Hollebeek, 2010b)
3. Conceptual Model for the process of customer engagement (Bowden, 2009)
4. Conceptual Model of consumer engagement and involvement concepts across wine outlets (Hollebeek, 2010a).
5. Conceptual model on customer engagement (Verhoef et al., 2010)
6. Engagement's Four I's Align With People's Buying Processes (Forrester Research, lnc.,2008)
7. Model of consumer engagement process in a vital brand community (Roderick et al., 2011)
8. Customer Engagement Model, Activities of 4 I's (Singh et al., 2010)
9. Conceptual Framework of Consumer Engagement (Vivek, 2009)
10. A conceptual model for the social influence of Brand Community (Algesheimer et al., 2005)
11. A research model for online social networks usage (Cheung et al., 2011)
12. Factors of Customer Engagement (Enginkaya and Esen, 2014)
13. An alternative model of selected CE conceptual relationships (Hollebeek et al., 2014)
14. Conceptual Model of Customer Engagement (So et al., 2014)

15. Hypothesised Model shaping customer engagement (Sarkar and Sreejesh, 2014)

16. A Generalized Multidimensional Scale for Measuring Customer Engagement (Vivek et al., 2014)

17. The higher-order model of consumer brand engagement (Dwivedi, 2015)

18. Duality, Dimensionality and Measurement of Customer Engagement (Dessart, Veloutsou, and Morgan- Thomas, 2016)

19. Customer Engagement dimensions (Harrigan et al., 2017)

20. A conceptual model for parameters of Customer Engagement (Gogoi and Kumar.2014)

4.1.5.1. Identified Antecedents and their Linkage with the existing Customer Engagement models

After reviewing the available literature, we were able to zero in on five broad parameters that contribute to the customer engagement process on social media platforms, and also discovered twelve antecedents that further described the five broad factors. Table 3.1 displays the results of coupling the antecedents collected from the literature review with the twenty listed customer engagement models referred to for the present study. This analysis revealed that the twelve discovered antecedents could be classified according to five broad parameters.

All twelve antecedents can be traced back to an earlier model. The number of antecedents associated with the parameters already considered in existing customer engagement models is then used to evaluate the models' degrees of similarity to one another. The identified parameters have been analysed on the basis of the twenty previously identified models. Table 4.1.9 shows a summary of the identified antecedents and their depiction in the existing identified CE models.

Table 4.1.9: Glimpse of Identified Antecedents and its Linkage with the existing Customer Engagement models

FACTORS/ PARAMETERS OF CE	ANTECEDENTS OF FACTORS/ PARAMETERS OF CE	Algesheimer et al. (2005)	Bowden (2009a)	Bowden (2009b)	Cheung et al. (2011)	Dessart, Veloutsou, and Morgan-Thomas (2016)	Dwivedi, (2015)	Enginkaya and Esen (2014)	Forrester Research, Inc. (2008)	Harrigan et al. (2017)	Hollebeek (2010a)	Hollebeek (2010b)	Hollebeek et al. (2014)	Roderick et al. (2011)	Sarkar and Sreejesh (2014)	Singh et al. (2010)	So et al. (2014)	Verhoef et al. (2010)	Vivek (2009)	Vivek et al. (2014)	Gogoi and Kumar (2014)
Identification	Self-identity & brand personality	–	✓	✓	–		✓	–	✓	✓	✓	✓	✓	✓	–	✓	✓	–	✓	✓	✓
	Rapport	–	✓	✓	–		✓	–	✓	✓	✓	✓	✓	✓	–	✓	✓	–	✓	✓	✓
	Relevancy	–	✓	✓	–		✓	–	✓	✓	✓	✓	✓	✓	–	✓	✓	–	✓	✓	✓
Enthusiasm	Brand information	–	✓	✓	–	✓	✓	–	✓	–	✓	✓	–	✓	–	✓	✓	–	✓	✓	✓
Attention	Embryonic motivational alliance	✓	✓	✓	–	–	✓	✓	✓	–	✓	✓	–	✓	–	✓	✓	–	✓	✓	✓
	Customer friendly behaviour	✓	–		–	–	✓	✓	–	–	–	–	–	–	–		✓	–	–	✓	✓
Absorption	Brand belongingness	–	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	–	✓	–	✓	✓	–	✓	–	✓
	Attitude	–	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	–	✓	–	✓	✓	–	✓	–	✓
	Dearness and bonding	–	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	–	✓	–	✓	✓	–	✓	–	✓
Interaction	Social group interaction & consciousness	–	–	✓	–	–	✓	–	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	–	–	✓
	Brand cocreation	–	–	✓	–	–	✓	–	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	–	✓
	Accommodative response	–	–	–	–	–	✓	–	–	✓	–	–	–	–	✓	–	✓	✓	–	–	✓
	TOTAL LINKED ANTECEDENTS	2	8	10	3	4	12	2	10	9	10	10	3	10	3	10	12	3	9	6	12

Table 4.1.9 also reveals that the customer engagement model established and studied by So et al. (2014) and Dwivedi (2015), identified the maximum number of antecedents out of a total of twelve antecedents. Furthermore, the customer engagement models developed by Bowden (2009b), Haven & Vittal, Forrester Research, Inc. (2008), Singh et al. (2010), Roderick et al. (2011), Hollebeek (2010b), Hollebeek (2010a) rank second in terms of model consistency. In third place are models by Vivek (2009), Harrigan et al. (2017), Bowden (2009a), Vivek et al. (2014), Dessart, Veloutsou, and Morgan-Thomas (2016), Hollebeek et al. (2014), Sarkar and Sreejesh (2014), Verhoef et al. (2010), Algesheimer et al. (2005), Cheung et al. (2011), and Enginkay and Esen (2014).

Table 4.1.10 also depicts, in rank order, the similarity of the various models of customer engagement in representing the identified parameters and antecedents.

Table 4.1.10: Proximity of Existing Customer Engagement (CE) Models

Ranks of models	CE Models and theories Considered for the Present Study
1st	So et al. (2014), Dwivedi, (2015), Gogoi and Kumar (2014)
2nd	Bowden, (2009b), Haven & Vittal, Forrester Research, Inc. (2008), Singh et al. (2010), Roderick et al. (2011), Hollebeek (2010b), Hollebeek (2010a)
3rd	Vivek (2009), Harrigan et al. (2017)
4th	Bowden (2009a)
5th	Vivek et al. (2014)
6th	Dessart, Veloutsou, and Morgan-Thomas (2016), Hollebeek et al. (2014), Sarkar and Sreejesh (2014), Verhoef et al. (2010)
7th	Algesheimer et al. (2005), Cheung et al. (2011), Enginkaya and Esen (2014)

Source: Primary

4.1.5.2. Proposed Conceptual Framework of the Study

As per Table 4.1.10, the majority of the antecedents and parameters were represented in models offered by So et al. (2014) and Dwivedi (2015). Thus, with reference to the models of So et al., (2014) and Dwivedi, (2015), the following conceptual model (Figure 4.5) was developed based on the preceding discussion.

Customer engagement is a broad notion with many facets. It was formerly defined as "customers' personal connection to a brand as manifested in cognitive, affective, and behavioural actions outside of the purchase situation." Measuring customer engagement along the three dimensions of cognition, affect, and behaviour does not offer a complete picture of the customer engagement process. Five factors were considered for this study to represent the entire process of customer engagement; nonetheless, several antecedents remain unproven to the entire process. Identification, Enthusiasm, Attention, Absorption, and Interaction are the five dimensions of consumer engagement that indicate the emotional and behavioural components of customer engagement. Although these five parameters articulate the notion of customer

engagement, it should be emphasised that each of these five parameters is represented by specific antecedents. Thus, in order to assess and comprehend customer engagement, information pertaining to these antecedents must also be included in a hierarchical way. As a result, a second-order construct known as antecedents was created and recommended to reflect the wider concept of customer engagement. These antecedents were supported by literature on customer engagement, as shown in Table 4.1.9.

Figure 4.5: Conceptual Framework of the study
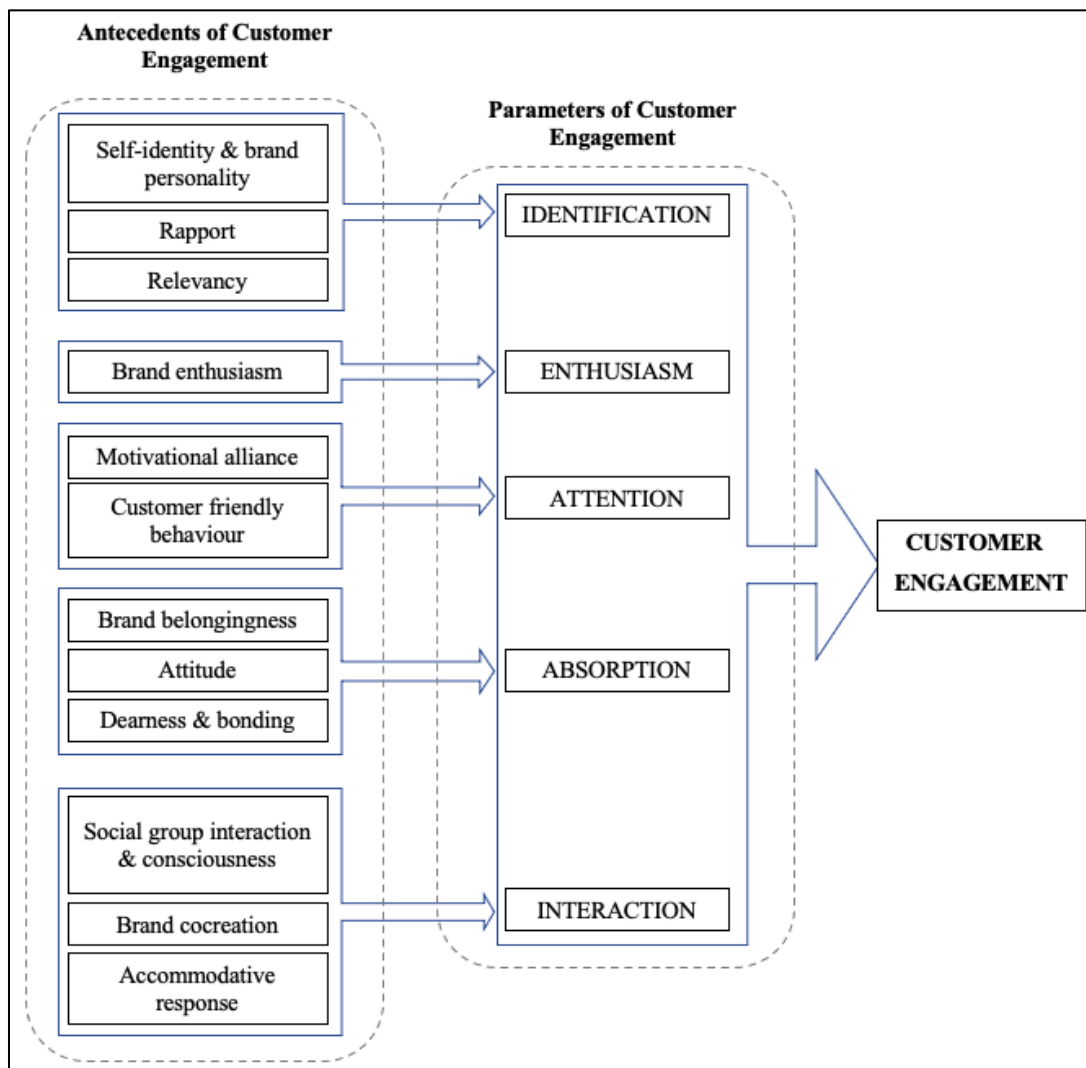
A five-dimensional measuring model was appropriate for the study since it wass required to evaluate the nature of the underlying construct of customer engagement, i.e., reflecting vs. formative, in order to assess it (Netemeyer, Bearden, & Sharma, 2003). In a reflective model, the cognitive component produces the parameters, but in a formative model, the parameters generate the concept. Customer engagement, like

many other social science concepts such as sentiments, personality, and behavioural intention (Hair et al., 2006), wass thought to cause its parameters, namely Identification, Enthusiasm, Attention, Absorption, and Interaction, and thus a reflective model of customer engagement is proposed. The five indicated parameters are expected to fluctuate with one another, which implies that changes in one induce equivalent changes in the others. The five recommended parameters are thus expected to covary, which implies that changes in one generate equivalent changes in the others (Hair et al., 2006). A high level of passion for the organisation, for example, is likely to increase the amount of attention paid to th organisation as well as user experience in online debates about the organisation.

For the same reason, there is a need to distinguish between customer engagement and involvement, as both appear to be identical in terms of consumer requirements, wants, and values which lead them to a given product or organisation (Hollebeek, 2009). In the current literature, involvement is most commonly used to refer to a product or organization's felt personal connection or worth. Customer engagement, on the other hand, takes more than just the application of one's mind. Customer engagement demands engagement with the brand/organization, and the need to act distinguishes customer engagement from participation, which is distinguished by a more inactive use of cognitive resources (Mollen & Wilson, 2009). Nonetheless, the rise of different levels of customer engagement necessitates some level of involvement with a core brand/organization. Philosophically, these characteristics distinguish the broad concept of customer engagement from involvement. Furthermore, Hollebeck (2009, 2011) and Patterson et al. (2006) presented in-depth analyses of how customer engagement differs from other related conceptionsvsuch as commitment, satisfaction, cocreation, and brand loyalty.

4.1.6. Interpretation of Bibliometric analysis

This study manifested in 2244 articles published between 2010 and 2022. In doing so it has answered two of the research questions i.e., the contemporary usage of social media handles for digital marketing by public services and for what purposes, and the possibility of developing or applying any existing framework of Customer Engagement on Social Media latforms, suitable for Indian Railways. As

such, eight key takeaways were identified, bringing forward the present study's intellectual structure and framework development.

First, there is an exponential growth in research studies related to social media usage by government services, from 16 articles in 2010 to 699 articles in 2018 and to 640 articles between 2019 and 2022. It can also be seen that the ongoing pandemic proved to be no such deterrent to scholars as seen from the total articles published between 2019 and 2021 (600 articles) which is higher than the combined articles between 2010 and 2015 (511 articles). The prominence of such studies on customer engagement indicates there is a growing reception of social media platforms for customer engagement by government services and government offices.

Second, such studies have been conducted mostly by countries like the United States (4997 citations), Spain (1406 citations), United Kingdom (487 citations), Netherlands (439 citations) and Greece (412 citations), to mention the top five countries involved in research in this area. It must be noted that such research is reported lesser by the Eastern nations which are represented by India (196 citations) and China (157 citations). One of the reasons might be that the prospective authors from these countries go for collaborations with their western counterparts from the United States, United Kingdom, Australia, New Zealand and Canada.

Third, the bibliometric analysis also revealed more than fifty journals which contributed to the studies of customer engagement by government services through their social media handles. Among these journals, it must be noted that most of them are government journals and administrative review journals, as such the articles thus, listed in them are highly reflective of information dissemination and development rather than analysis.

Fourth, the overview of the areas of research related to this focuses on human society, specifically concerning the implementation of policies for customers and the implementation of digital platforms on which these policies are disseminated. Subsequently, research focused on social media platforms, specifically on how to address government and user security concerns were conducted. Even while it was expected that government agencies would utilize social media for information

transmission, it has been used to increase knowledge about different sectors, the health and well-being of residents, and how to communicate with them.

Fifth, the bibliometric coupling based on documents, sources, and authors, brings to the forefront the present research in customer engagement by government services through their social media handles. As such themes such as customer engagement and online communities, modelling of customer engagement, empirical validation and theoretical conceptualisation, customer engagement and social media, and contextual customer engagement has prominent emerged as areas of research.

Sixth, the co-citation analysis based on references has brought forward three areas of theoretical support in the form of consumer brand community engagement; customer engagement concepts, execution, and models; and online and digital customer engagement. Also, based on co-citation analysis based on journals depicts themes of government data, politics, public administration, ethics, marketing research and information technology and social services. Thus, these themes helped in the identification of foundational models already in existence as the basis for model formation for this study.

Seventh, the keyword co-occurrence analysis focuses on the present research areas in the related topic. As such six such clusters emerged. Thus, the present research in this field is directed towards customer engagement as a tool to impact consuming behaviours, customer engagement in social media, customer engagement as a strategy to gain customers, variances in consumer engagement behaviour, customer relationship management via customer engagement, and customer engagement in electronic commerce.

Eight, the co-citation analysis aided in the identification of twenty such models and theories for the conceptual model formulation for the present study. After reviewing and analysing these theories and models, the final conceptual model of the study was formulated, including twelve discovered antecedents that could be classified according to five broad parameters.

4.2. OBJECTIVE 2 – To determine the factors affecting customer engagement towards the services of Indian Railways on social media handles.

This section shows the results of the factor analysis conducted in understanding customer engagement on the social media handles of Indian Railways. Factor analysis has been applied to the twenty-nine statements given in Table 4.2.1. The reliability of statements as measured by Cronbach's Alpha is 0.876 thus signifying a suitable level of internal reliability (Hair et al., 2014).

4.2.1. Statements and Means

The statements were formed based upon a careful study of various studies that explored the parameters that were identified in the bibliometric analysis conducted for the same purpose under the first objective. The present study of customer engagement on social medial handles of Indian Railways is comprised of three zones namely, Eastern Railways, Northeast Frontier Railways and South Eastern Railways. Respondents were asked to give their responses, to a set of thirty-nine statements that were framed based on an extensive literature review and discussion with experts. These statements reflected the customer engagement of Indian Railways on their social media handles (Table 4.2.1). They were asked to express their agreement on a scale of 1-5, where 1 stood or strongly disagree and 5 for strongly agree.

Table 4.2.1: List of statements for the study of Customer Engagement on social media handles of Indian Railways.

No.	Statements
S1	I feel a personal connection to the organisation.
S2	I can identify with the organisations' goals.
S3	I keenly notice information related to the organisation.
S4	I feel the organisation serves every customers need.
S5	I feel emotionally connected to the organisation.
S6	The organisation provides platform for customer interaction.
S7	I post suggestions in the organisation's social media handles for service improvement.
S8	I feel the organisation respond to customers observations of the organisation by incorporating observation into service improvement.

S9	When someone criticises this organisation on social media platforms, it feels like a personal insult.
S10	I believe the organisation reflects the customers' wants and needs.
S11	I am passionate about the organisations' social media handles.
S12	I like to learn more about this organisations' online community.
S13	I pay a lot of attention to anything about the organisation.
S14	I feel the organisation have a unique place in the mind of the customers.
S15	I often visit the organisation's social media handles and give feedback about their services.
S16	I recommend the organisation's services to friends & other groups of people on various social media handles.
S17	I feel the organisations' successes are the customers' successes.
S18	I feel the organisation has a strong understanding for customer's requirement.
S19	I feel proud to recommend the services of the organisation.
S20	The organisation explicitly appreciate/reward views of customers regarding the services of the organisation on social media.
S21	I am heavily into the organisation's social media handles
S22	I think that the organisation has a genuine concern for its customers.
S23	I feel convinced by the organisations' endorsement on social media handles.
S24	The organisation formulates ideas through discussion and collaboration about the organisation with the customers on social media handles.
S25	When someone praises this organisation on social media handles, it feels like a personal compliment.
S26	I enjoy spending time on the organisations' social media handles.
S27	I feel the organization shares the goals of its customers.
S28	I believe the organisations' services benefit the customers' in the long run.
S29	I have a sense of belongingness towards the organisation.

The mean values of the three Railway Zones were determined. F-ratios were also calculated (Table 4.2.2). After checking whether significant differences exist between the opinion of respondents from different Railway Zones, factor analysis was employed on the aggregate group of respondents. The reliability of the scale was measured with the help of Cronbach's Alpha.

Mean scores are cumulative averages of the responses of the respondents. This help to assess and analyze the level of respondent agreement on all the selected twenty-nine statements separately. A moderate level of agreement is at the mid-point of the scale, i.e., 3 and this was taken taken as the average. Based on this, variables which have a mean value above 4 depict a high level of respondent agreement, mean value above 2 and up to 3 shows a moderate agreement level, above 1 and up 2 shows less agreement level and mean value below 1 shows a high level of disagreement.

H1$_0$: There is no significant difference among the respondents belonging to different "Railway Zones" regarding customer engagement on social media handles of Indian Railways.

To examine whether any significant differences exist among the respondents belonging to different Railway Zones concerning customer engagement on social media handles of Indian Railways, F-ratios have been calculated to the responses of each statement. Mean values along with F-ratios for various statements are presented in Table 4.2.2.

Table 4.2.2: Viewpoint of Respondents Towards Customer Engagement on social media handles (Overall and Railway Zone-wise Mean Scores and F-Ratio)

No.		Overall Mean Value (M)	Eastern Railways (M1)	Northeast Frontier Railways (M2)	South Eastern Railways (M3)	F-Ratio
S1	I feel a personal connection to the organisation.	3.35	3.34	3.34	3.37	0.052
S2	I can identify with the organisations' goals.	3.45	3.46	3.44	3.46	0.04
S3	I keenly notice information related to the organisation.	2.83	2.85	2.79	2.86	0.249

S4	I feel the organisation serves every customers need.	3.92	3.89	3.99	3.89	1.282
S5	I feel emotionally connected to the organisation.	3.12	3.11	3.06	3.18	0.645
S6	The organisation provides platform for customer interaction.	3.61	3.58	3.61	3.64	0.173
S7	I post suggestions in the organisation's social media handles for service improvement.	3.48	3.5	3.46	3.47	0.079
S8	I feel the organisation respond to customers observations of the organisation by incorporating observation into service improvement.	3.56	3.57	3.5	3.62	0.956
S9	When someone criticises this organisation on social media platforms, it feels like a personal insult.	3.34	3.37	3.34	3.32	0.166
S10	I believe the organisation reflects the customers' wants and needs.	3.41	3.42	3.4	3.41	0.015

S11	I am passionate about the organisations' social media handles.	3.13	3.1	3.09	3.21	1.141
S12	I like to learn more about this organisations' online community.	3.83	3.83	3.82	3.84	0.047
S13	I pay a lot of attention to anything about the organisation	3.87	3.92	3.87	3.81	0.901
S14	I feel the organisation have a unique place in the mind of the customers.	3.42	3.39	3.36	3.5	0.963
S15	I often visit the organisation's social media handles and give feedback about their services.	3.58	3.54	3.58	3.61	0.252
S16	I recommend the organisation's services to friends & other groups of people on various social media handles.	3.48	3.52	3.44	3.47	0.346
S17	I feel the organisations' successes are the customers' successes.	3.39	3.42	3.35	3.41	0.35
S18	I feel the organisation has a strong understanding for	3.86	3.87	3.9	3.82	0.444

	customer's requirement.					
S19	I feel proud to recommend the services of the organisation.	3.38	3.36	3.39	3.4	0.084
S20	The organisation explicitly appreciate/reward views of customers regarding the services of the organisation on social media.	3.65	3.61	3.64	3.7	0.439
S21	I am heavily into the organisation's social media handles	3.00	2.98	2.96	3.07	0.787
S22	I think that the organisation has a genuine concern for its customers.	3.94	3.99	3.93	3.9	0.891
S23	I feel convinced by the organisations' endorsement on social media handles.	3.10	3.11	3.04	3.16	0.572
S24	The organisation formulates ideas through discussion and collaboration about the organisation with the customers on social media handles.	3.55	3.57	3.49	3.59	0.703

S25	When someone praises this organisation on social media handles, it feels like a personal compliment.	3.35	3.38	3.32	3.36	0.212
S26	I enjoy spending time on the organisations' social media handles.	3.08	3.17	3.02	3.06	1.229
S27	I feel the organization shares the goals of its customers.	3.42	3.35	3.41	3.49	0.819
S28	I believe the organisations' services benefit the customers' in the long run.	3.25	3.27	3.23	3.26	0.084
S29	I have a sense of belongingness towards the organisation.	3.10	3.08	3.04	3.18	0.908

The table shows that the overall mean scores range from a high of 3.94 on statement S22 (I think that the organisation has a genuine concern for its customers) to as low as S3 (I keenly notice information related to the organization). A high score of statement S22 indicates that most of the respondents agree that Indian Railways pays attention to its customers and the customers in turn pay attention to the information put out by Indian Railways on its social media handles. This was further validated by the high mean scores of 3.92 on the statement S4 (I feel the organisation serves every customers need), 3.87 on the statement S13 (I pay a lot of attention to anything about the organization), 3.83 on the statement S12 (I like to learn more about this organisations' online community) and, 3.86 on the statement S18 (I feel the organisation has a strong understanding for

customer's requirement). This, indicates that the attention of the organization and the customers toward each other is essential for building a customer engagement process.

Respondents leaned towards agreeing with statements of S20 (The organisation explicitly appreciate/reward views of customers regarding the services of the organisation on social media), S6 (The organisation provides platform for customer interaction), S15 (I often visit the organisation's social media handles and give feedback about their services), S8 (I feel the organisation respond to customers observations of the organisation by incorporating observation into service improvement) and S24 (The organisation formulates ideas through discussion and collaboration about the organisation with the customers on social media handles.). All of these statements describe the interaction process of customer engagement between customers and Indian Railways.

Most of the mean scores from the table show value closer to 3, implying that the respondents neither agree nor disagree with the statements. Thus, respondents are neutral to the statements   S16 (I recommend the organisation's services to friends & other groups of people on various social media handles), S7 (I post suggestions in the organisation's social media handles for service improvement), S2 (I can identify with the organisations' goals), S27 (I feel the organization shares the goals of its customers), S14 (I feel the organisation have a unique place in the mind of the customers), S10 (I believe the organisation reflects the customers' wants and needs), S17 (I feel the organisations' successes are the customers' successes), S19 (I feel proud to recommend the services of the organization), S25 (When someone praises this organisation on social media platforms, it feels like a personal compliment), S1 (I feel a personal connection to the organization), S9 (When someone criticises this organisation on social media platforms, it feels like a personal insult), S28 (I believe the organisations' services benefit the customers' in the long run), S11 (I am passionate about the organisations' social media handles), S5 (I feel emotionally connected to the organization), S23 (I feel convinced by the organisations' endorsement on social media handles), S29 (I have a sense of belongingness towards the organization), S26 (I enjoy spending time on the organisations' social media handles), S21 (I am heavily into the organisation's social media handles) and, S3 (I keenly notice information related to the organization). When looked closely it can be interpreted that the respondents do not

consider enthusiasm to interact and absorb the communication way between Indian Railways and the customers as a way of customer engagement on social media handles of Indian Railways.

The differences in the mean scores of the respondents belonging to the three Railway zones have been found to be statistically insignificant for 26 out of 29 statements. Looking closely, the majority of the respondents belonging to the three considered Railway Zones have expressed a greater level of agreement with the statements: S4 (I feel the organisation serves every customers need), S13 (I pay a lot of attention to anything about the organization), S18 (I feel the organisation has a strong understanding for customer's requirement) and, S22 (I think that the organisation has a genuine concern for its customers). The differences between the respondent's viewpoint from the three different Railway Zones have been found to be statistically significant regarding these statements at a 5 per cent level of significance.

A comparison of the responses shows that the respondents from the different Railway Zones have a similar view towards customer engagement on social media handles of Indian Railways. Hence the null hypothesis $H1_0$ is accepted. Taking this into consideration we have applied factor analysis only on the aggregate group of respondents and not on individual Railway Zone respondents.

As observed from the higher mean scores the statements like "I think that the organisation has a genuine concern for its customers", "I feel the organisation serves every customers need", "I pay a lot of attention to anything about the organization", "I like to learn more about this organisations' online community" and "I feel the organisation has a strong understanding for customer's requirement", indicates that the attention of the organization and the customers toward each other is essential for building a customer engagement process. It also implies that every online action of the Indian Railways is keenly noticed and is interpreted by the customers actively. As such it becomes imperative that Indian Railways while targeting to achieve active customer engagement of social media platforms be very conscious of the information put forth by them on such platforms.

4.2.2. Data for factor analysis

To test the appropriateness of the dataset for factor analysis, the following steps were computed, and it portrayed that there were adequate correlations to conduct factor analysis.

- Anti-image correlations were figured. The partial correlations were low thus implying that true factors were present in the data.
- Overall Measures of Sampling Adequacy (MSA) such as KMO value was located to suggest that the sample was suitable enough for sampling.
- Bartlett's Test of Sphericity (Bartlett, 1950) revealed a statistically significant number of correlations among the variables.

For this study, Principal Component Analysis (PCA) has been applied for the extraction of factors. The number of factors has been held based on the latent root criterion. Thus, factors having Eigenvalues or latent roots greater than 1 have been considered substantial while the rest has been ignored. The above considerations hereby established the dataset fit for factor analysis.

4.2.3. The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin (KMO) is a statistic for measuring sample adequacy; it shows what percentage of the variation in the variable might be due to unobserved causes. When the value is high (almost 1), the factor analysis is likely to yield relevant findings for the dataset, whereas low values (below.50) suggest the conclusions are unlikely to be of much help.

Table 4.2.3: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.724
Bartlett's Test of Sphericity	Approx. Chi-Square	24102.963
	df	406
	Sig.	<0.001

Table 4.2.3 shows the results of Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity, wherein the KMO value of 0.724 (between 0.6 and 1.0) indicates that factor

analysis is appropriate for the present study dataset. Bartlett's Test of Sphericity is found to be significant as p<=0.001 with df=406, indicating that the correlation matrix is significantly different from an identity matrix, in which correlations between variables are all zero.

4.2.4. Communalities

As per the literature, the value of communality extraction should be above 0.4, as these communalities represent the relation between the variable and all the other variables (i.e., the squared multiple correlations between the item and all the other items).

Table 4.2.4: Commonality Extraction

	Communalities	Extraction
S1	I feel a personal connection to the organisation.	0.876
S2	I can identify with the organisations' goals.	0.638
S3	I keenly notice information related to the organisation.	0.766
S4	I feel the organisation serves every customers need.	0.706
S5	I feel emotionally connected to the organisation.	0.716
S6	The organisation provides platform for customer interaction.	0.843
S7	I post suggestions in the organisation's social media handles for service improvement.	0.894
S8	I feel the organisation respond to customers observations of the organisation by incorporating observation into service improvement.	0.825
S9	When someone criticises this organisation on social media platforms, it feels like a personal insult.	0.848
S10	I believe the organisation reflects the customers' wants and needs.	0.810
S11	I am passionate about the organisations' social media handles.	0.736
S12	I like to learn more about this organisations' online community.	0.763
S13	I pay a lot of attention to anything about the organisation.	0.888
S14	I feel the organisation have a unique place in the mind of the customers.	0.612

S15	I often visit the organisation's social media handles and give feedback about their services.	0.837
S16	I recommend the organisation's services to friends & other groups of people on various social media handles.	0.878
S17	I feel the organisations' successes are the customers' successes.	0.880
S18	I feel the organisation has a strong understanding for customer's requirement.	0.824
S19	I feel proud to recommend the services of the organisation.	0.630
S20	The organisation explicitly appreciate/reward views of customers regarding the services of the organisation on social media.	0.829
S21	I am heavily into the organisation's social media handles	0.736
S22	I think that the organisation has a genuine concern for its customers.	0.802
S23	I feel convinced by the organisations' endorsement on social media handles.	0.759
S24	The organisation formulates ideas through discussion and collaboration about the organisation with the customers on social media handles.	0.832
S25	When someone praises this organisation on social media handles, it feels like a personal compliment.	0.901
S26	I enjoy spending time on the organisations' social media handles.	0.405
S27	I feel the organization shares the goals of its customers.	0.472
S28	I believe the organisations' services benefit the customers' in the long run.	0.649
S29	I have a sense of belongingness towards the organisation.	0.832
	Extraction Method: *Principal Component Analysis.*	

As can be seen in Table 4.2.4, the communalities were all above 0.4 in value, further confirming that each item shared some common variance with the other items. Given these overall indications, factor analysis is deemed suitable for all twenty-nine items.

4.2.5. Total Variance Explained

Table 4.2.5, illustrates the variance explained by the initial solution, extracted components, and rotated components.

Table 4.2.5: Total Variance explained for the factors.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.17	24.71	24.71	7.17	24.71	24.71	5.85	20.18	20.18
2	5.70	19.64	44.34	5.70	19.64	44.34	5.47	18.86	39.05
3	4.20	14.48	58.82	4.20	14.48	58.82	4.22	14.57	53.61
4	2.98	10.26	69.08	2.98	10.26	69.08	3.94	13.58	67.19
5	2.15	7.43	76.50	2.15	7.43	76.50	2.70	9.32	76.50
6	0.96	3.30	79.80						
7	0.74	2.55	82.36						
8	0.64	2.20	84.56						
9	0.59	2.03	86.59						
10	0.54	1.88	88.46						
11	0.47	1.62	90.09						
12	0.41	1.43	91.51						
13	0.38	1.33	92.84						
14	0.34	1.17	94.01						
15	0.31	1.07	95.08						
16	0.28	0.97	96.06						
17	0.25	0.88	96.93						
18	0.17	0.59	97.52						
19	0.16	0.55	98.08						
20	0.14	0.48	98.55						
21	0.10	0.35	98.90						
22	0.09	0.32	99.22						
23	0.07	0.24	99.46						
24	0.06	0.19	99.65						
25	0.04	0.14	99.79						
26	0.04	0.12	99.92						
27	0.01	0.05	99.96						
28	0.01	0.03	100.0						
29	0.00	0.00	100.0						
Extraction Method: *Principal Component Analysis.*									

The broad column of the table demonstrates the variance explained by the initial solution. The initial five components with eigenvalues greater than 1 are to be the extracted solution. Eigenvalues refer to the variance explained or accounted for. The second broad column of the table illustrates the variance explained by the extracted factors before rotation. The cumulative variability explained by these factors in the extracted solution is about 76.5% which being like the initial solution, infers thus no initial solution is lost due to latent factors.

4.2.6. Scree Plot

A scree plot is a graphical tool used in the selection of the number of relevant components or factors to be considered in a principal components analysis or a factor analysis.

According to the Scree test, the "elbow" of the graph where the eigenvalues seem to level off is found and factors or components to the left of this point should be retained as significant. Thus, from graph 4.3, it can be concluded that present study has five factors that have been found based on their Eigenvalues.

Graph 4.3: Scree Test Plot
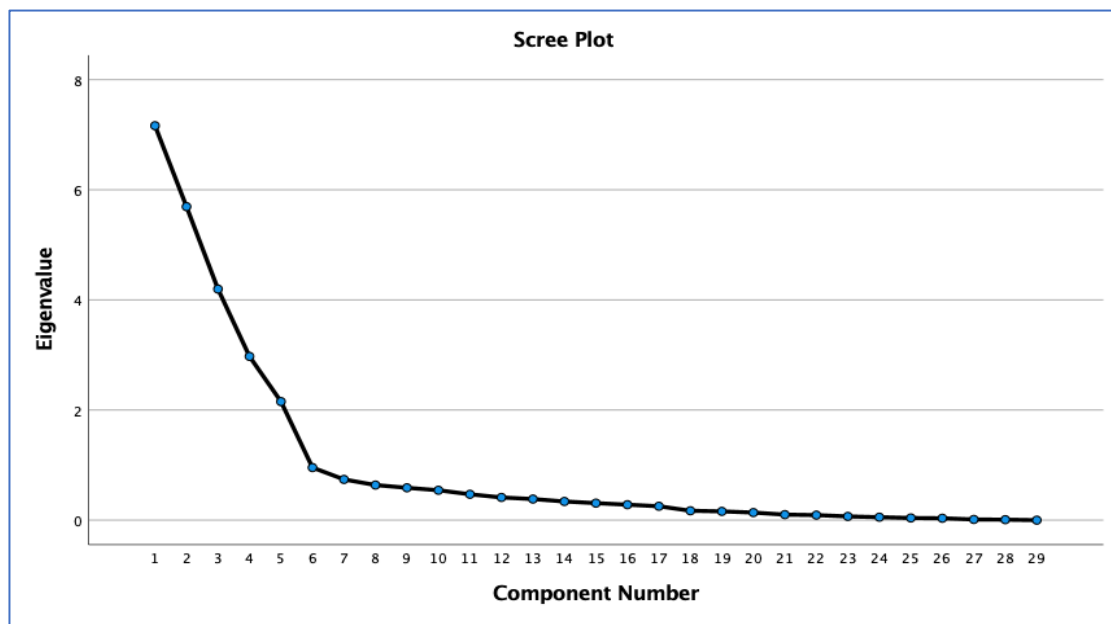
4.2.7. Rotated Component Matrix (Principal Component Analysis)

The rotated component matrix specifies the five factors which promote customer engagement in the three zones of Indian Railways. Table 4.2.6 shows the statements can be clubbed under five factors determining the broader subject of customer engagement

by Indian Railways. A factor loading symbolizes the correlation between a variable and its factor. The factor loadings, which were greater than 0.30, have been held.

Table 4.2.6: Principal Component Analysis with Varimax Rotation

LABEL	FACTORS				
	F1	F2	F3	F4	F5
	Identification	Interaction	Attention	Absorption	Enthusiasm
S1	0.926				
S9	0.896				
S25	0.935				
S2	0.701				
S10	0.891				
S17	0.936				
S28	0.804				
S6		0.916			
S7		0.919			
S15		0.903			
S24		0.865			
S16		0.910			
S20		0.913			
S4			0.834		
S22			0.889		
S18			0.89		
S12			0.859		
S13			0.912		
S29				0.888	
S5				0.793	
S19				0.785	
S14				0.715	
S27				0.678	
S23				0.661	
S21					0.846

S3					0.86
S26					0.579
S11					0.815
Extraction Method: *Principal Component Analysis.*					
Rotation Method: *Varimax with Kaiser Normalization.*					
Rotation converged in 6 iterations.					

Based on a sample size of 601 respondents, it has been specified that a factor loading of 0.30 or above has been substantial (Hair et al., 2014). In the study, principal factors have been orthogonally rotated by the application of varimax rotation. This has resulted in the emergence of five major factors for defining customer engagement by Indian Railways in the three zones considered for the study.

4.2.8. Interpretation of Factor Analysis

Based on the five-factor (in all places) conceptual model formed, the statements were clubbed together on their proximity to the definition of the individual five-factors of the conceptual model. The statements under these five-factors are examined below.

Factor 1 (F1): Identification

The first-factor includes seven statements that have been positively loaded under it. The factor includes statements S1(I feel a personal connection to the organization), S9 (When someone criticises this organisation on social media platforms, it feels like a personal insult), S25 (When someone praises this organisation on social media platforms, it feels like a personal compliment), S2 (I can identify with the organisations' goals), S10 (I believe the organisation reflects the customers' wants and needs), S17 (I feel the organisations' successes are the customers' successes), and S28 (I believe the organisations' services benefit the customers' in the long run). These statements emphasize on the self-identity, brand personality, rapport and relevancy aspect between the organization and the customers. Moreover, these statements implies that the customers identify themselves with the organization thus, becoming the first step towards customer engagement. Hence, this factor is named "identification".

Factor 2 (F2): Interaction

Statements S6 (The organisation provides platform for customer interaction.), S7 (I post suggestions in the organisation's social media handles for service improvement),

S15 (I often visit the organisation's social media handles and give feedback about their services), S24 (The organisation formulates ideas through discussion and collaboration about the organisation with the customers on social media handles), S16 (I recommend the organisation's services to friends & other groups of people on various social media handles), S20 (The organisation explicitly appreciate/reward views of customers regarding the services of the organisation on social media), and S8 (I feel the organisation respond to customers observations of the organisation by incorporating observation into service improvement), are clubbed as the fifth factor, which is termed as "interaction". These statements reflect the behavioural manifestation of a consumer's engagement with the organisation beyond conventional consumptive behaviour

Factor 3 (F3): Attention

Statements S4 (I feel the organisation serves every customers need.), S22 (I think that the organisation has a genuine concern for its customers), S18 (I feel the organisation has a strong understanding for customer's requirement), S12 (I like to learn more about this organisations' online community), and S13 (I pay a lot of attention to anything about the organisation) comprises the factor three. This factor describes a crucial feature of engagement that has been consistently highlighted by academics is the quality of attention. Customers' attention to a organisation leads to an increased interest in organisation-related content leading to customer engagement. Thus, the statements here describe the motivation for the customers to pay attention to the organisation on their social media handles.

Factor 4 (F4): Absorption

This factor includes the statements S29 (I have a sense of belongingness towards the organisation), S5 (I feel emotionally connected to the organisation), S23 (I feel convinced by the organisations' endorsement on social media handles), S19 (I feel proud to recommend the services of the organisation), S14 (I feel the organisation have a unique place in the mind of the customers), and S27 (I feel the organization shares the goals of its customers). This factor is termed as absorption as these statements describe a state of complete attention, pleasure, and participation in the brand that occurs when customer engagement is effectively implemented. Thus, such statements describe the

attitude, belongingness and bonding of the customers with the organistions' social media handles.

Factor 5 (F5): Enthusiasm

Factor two explains the statements S21 (I am heavily into the organisation's social media handles), S3 (I keenly notice information related to the organisation), S26 (I enjoy spending time on the organisations' social media handles), and S11 (I am passionate about the organisations' social media handles). This factor studies the readiness of the customers to avail and to connect to the organisation through their social media handles. Enthusiasm for a brand/organisation is what drives customers to become part of brand/organisation communities and/or promote that brand/organisation to others. Enthusiasm and passion are often cited as crucial elements of customer engagement's emotional component.

Identification is based on the social identity theory that says one's identity is made up of two parts: one's own and one's group's. People create a sense of self and their place in the world by belonging to distinct groups. The advent of social media has deregulated customer engagement, allowing active consumers more freedom to voice their opinions on goods and services across several platforms by posting, reviewing, blogging, and sharing visual content (photos, videos). Having said this, the highest factor loading was termed as Identification. In the case of Indian Railways, their social media handles primarily consists of information related to social good and a reflection of their developmental strategies. Hence, the statements here eludes a sense of nationality and patriotism amongst the customers.

4.3. OBJECTIVE 3 - To study the influence of demographics on customer towards the services of Indian Railways on social media handles.

The following section illustrates the data analysis related to studying the effect of demographic variables on the factors of Identification, Enthusiasm, Attention, Absorption and Interaction of customer engagement. The demographics of the study have been described. Pearson Correlation Matric has been conducted to understand the correlation between the factors zone-wise. ANOVA testing has been adopted to understand the effect of the demographic variables and the factors of customer engagement.

4.3.1. Demographic Characteristics of The Study

Data collection was done in a phase-wise manner and as convenient to the researcher, through structured questionnaire (formed on the basis of gap identified from literature review and existing study survey). The respondents' selection was based on their minimum exposure and awareness of various social media handles of Indian Railways. The respondents belonging to one of the nine considered states and having purchased a train ticket for any destination were randomly selected. The summary data and interpretations are as discussed further.

4.3.1.1. Frequency Report

To make the study more reliable proper randomization and equal importance were given to the gender, occupation, and educational qualification of the respondents based on their exposure and awareness level of various social media handles of Indian Railways.

4.3.1.1.1. Age-wise frequency distribution of respondents

Age-wise frequency distribution of the respondents for the study was done. The categories taken were of the age group intervals as "18-28", "29-38", "39-48", "49-58" and, "59 and above". Table 4.3.1 and Graph 4.4 depicted below present the age-wise respondents' distribution.

Table 4.3.1: Age-wise distribution of the study population (N = 601)

Age	n (No. of respondents)	Frequency (%)
18-28	257	42.80
29-38	120	20.00
39-48	93	15.50
49-58	90	15.00
59 and above	41	6.80
Total	**601**	**100**

Of the total 601 respondents, it was found that, 257 respondents (42.8%) were of the age group "18-28 years", 120 respondents (20.00%) were of the age group "29-38 years", 93 respondents (15.50%) were of the age group "39-48 years", 90 respondents (15.00%) were of the age group "49-58 years" and, 41 respondents (6.80%) were from the age group of "59 and above".

Graph 4.4: Age group of respondents (based on n - no. of respondents)
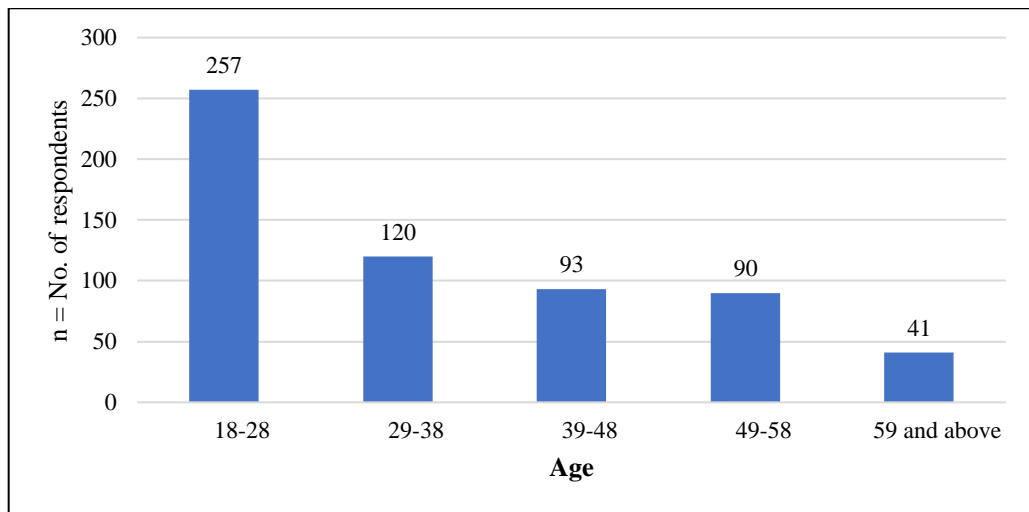
4.3.1.1.2. Gender-wise frequency distribution of respondents

For gender-wise frequency distribution of the respondents, the categories considered were "Male" and "Female". Table 4.3.2 and Graph 4.5 depicted below present the gender-wise distribution of the respondents.

Table 4.3.2: Gender-wise distribution of the study population (N = 601)

Gender	n (No. of respondents)	Frequency (%)
Female	265	44.10
Male	336	55.90
Total	**601**	**100**

Table 4.3.2 show the distribution of the gender profile of the respondents. The total population of 601 respondents comprised of 265 "Female" respondents (44.10%) and, 336 "Male" respondents (55.90%).

Graph 4.5: Gender of respondents (based on n, no. of respondents)

133
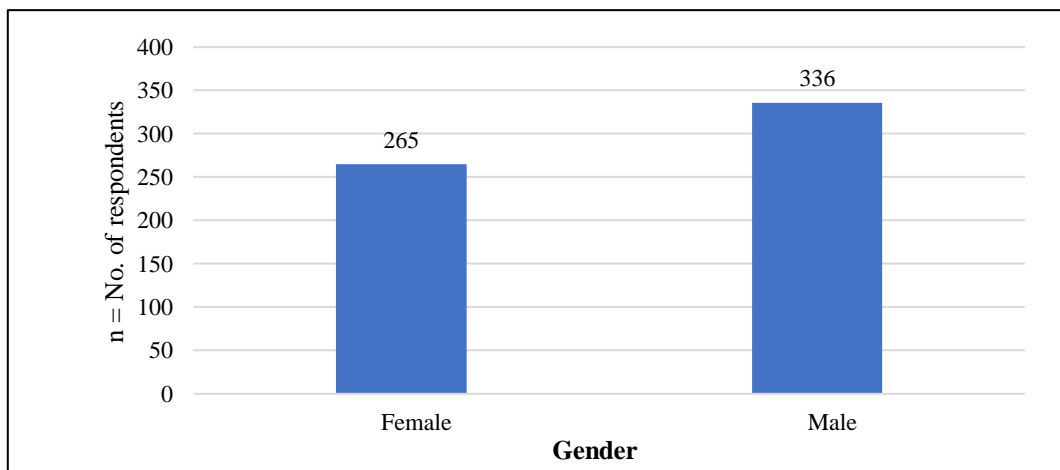
4.3.1.1.3. Educational Qualification-wise frequency distribution of respondents

For educational qualification-wise frequency distribution of the respondents, the categories considered were "Matriculation", "Higher Secondary", "Graduate", "Post Graduate/Masters", "MPhil/PhD" and, "Others". Table 4.3.3 and Graph 4.6 depicted below present the educational qualification-wise distribution of the respondents.

Table 4.3.3: Educational Qualification-wise distribution of the study population (N = 601)

Educational Qualification	n (No. of respondents)	Frequency (%)
Matriculation	76	12.60
Higher Secondary	79	13.10
Graduate	237	39.40
Post Graduate/Masters	188	31.30
M.Phil./PhD	16	2.70
Others	5	0.80
Total	**601**	**100**

Table 4.3.3 highlights the Educational Qualification profile of the respondents. It was observed that of the total 601 respondents, 76 respondents (12.60%) had "Matriculation" qualification, 79 respondents (13.10%) had "Higher Secondary" qualification, 237 respondents (39.40%) were "Graduate" degree holders, 188 respondents (31.30%) had "Post Graduate/Masters" degrees, 16 respondents (2.70%) were "M.Phil./PhD" degree holders and, 5 respondents (0.80%) had "Others" as their educational qualification.

Graph 4.6: Educational Qualification of respondents (based on n, no. of respondents)
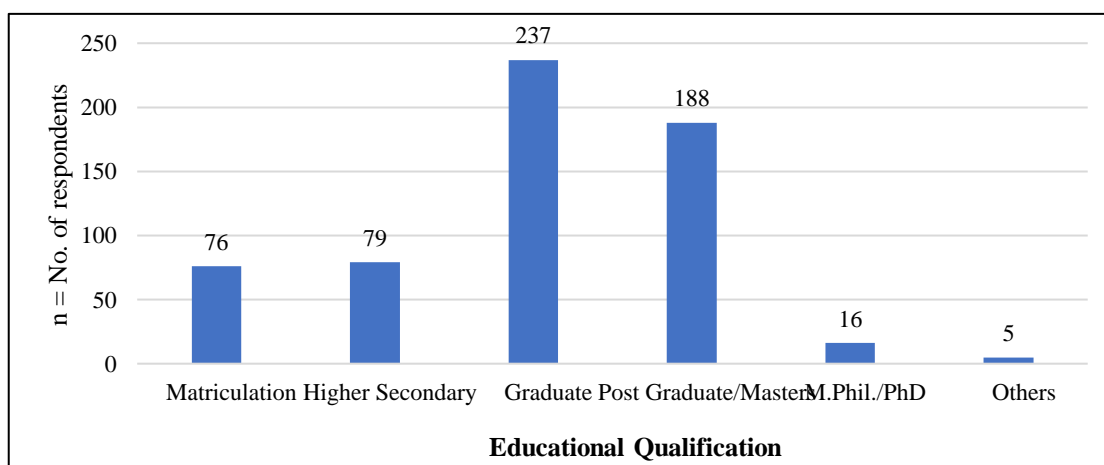
4.3.1.1.4. Occupation-wise frequency distribution of the respondents

For occupation-wise frequency distribution of the respondents, the categories considered were "Government Service", "Housewife", "Private Service", "Self-employed", "Student" and, "Retired Personnel". Table 4.3.4 and Graph 4.7 depicted below present the occupation-wise distribution of the respondents.

Table 4.3.4: Occupation-wise distribution of the study population (N = 601)

Occupation	n (No. of respondents)	Frequency (%)
Government Service	152	25.30
Housewife	78	13.00
Private Service	106	17.60
Self-employed	93	15.50
Student	167	27.80
Retired Personnel	5	0.80
Total	**601**	**100**

From table 4.3.4, the occupational profile of the respondents has been made apparent. In this aspect, 152 of the respondents (25.30%) were "Government Service" holder, 78 respondents (13.00%) were "Housewives", 106 respondents (17.60%) were in "Private Service", 93 respondents (15.50%) were "Self-employed", 167 respondents (27.80%) were "Students" and, the rest 5 respondents (0.80%) were "Retired Personnel".

Graph 4.7: Occupation of respondents (based on n, no. of respondents)
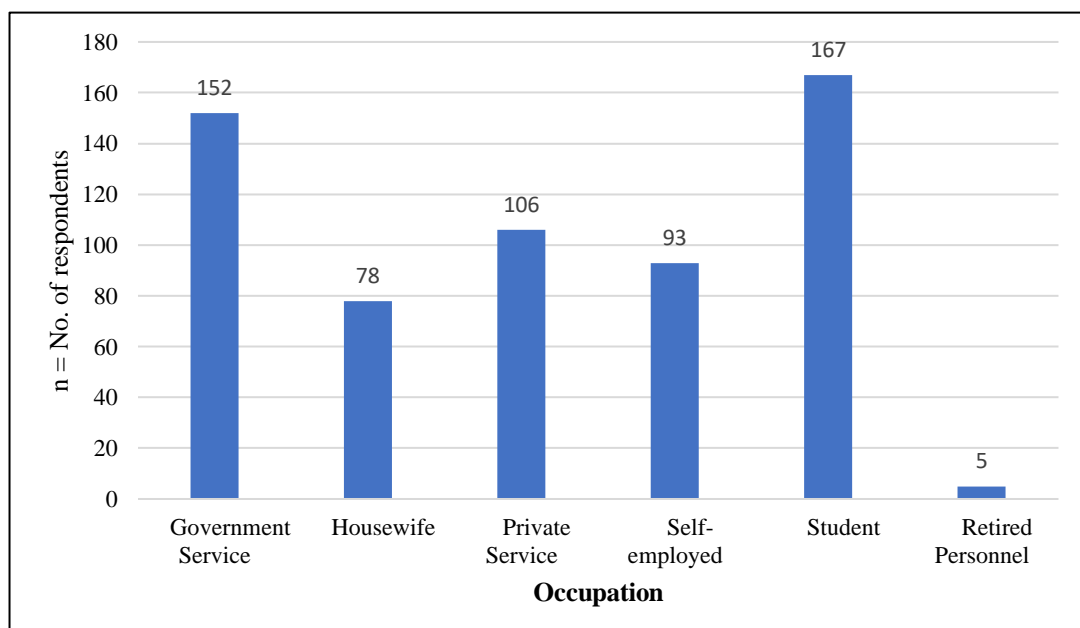
4.3.1.1.5. Zone-wise frequency distribution of respondents

For Zone-wise frequency distribution of the respondents, the Railway Zones considered for the study are "Eastern Railways", "Northeast Frontier Railways" and, "South Eastern Railways". Table 4.3.5 and Graph 4.8 depicted below present the zone-wise distribution of the respondents.

Table 4.3.5: Zone-wise distribution of the study population (N = 601)

Railway Zone	n (No. of respondents)	Frequency (%)
Eastern Railways	183	30.40
Northeast Frontier Railways	201	33.40
South Eastern Railways	217	36.10
Total	**601**	**100**

As three Railway Zones were considered for the study, viz., Eastern Railways, Northeast Frontier Railways and South Eastern Railways, the respondents belonged to these three zones. Table 4.3.5 delineates the total respondent distribution among these three Railway Zones. Thus, 183 respondents (30.40%) were from "Eastern Railways", 201 respondents (33.40%) were from "Northeast Frontier Railways" and, 217 respondents (36.10%) were from "South Eastern Railways"

Graph 4.8: Railway Zone of respondents (based on n, no. of respondents)
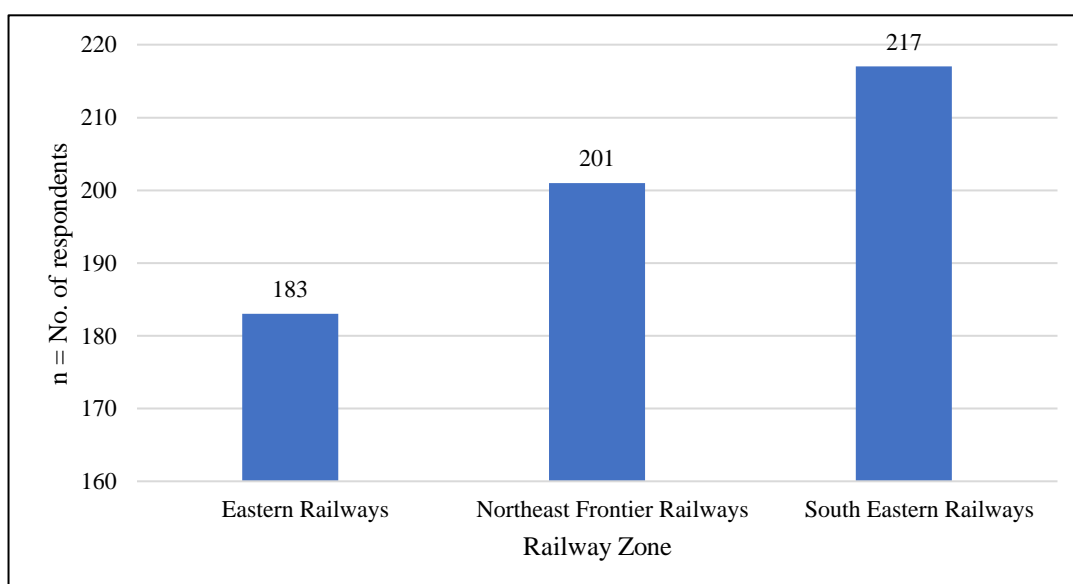
4.3.1.2. Crosstabulation Report

A crosstabulation also known as a contingency table shows the relationship between two or more variables by recording the frequency of observations that have multiple characteristics. Crosstabulation tables show a wealth of information on the relationship between the included variables. As the study is confined to three Railway Zones, the crosstabulation tables include the study of the demographic variables with respect to each.

4.3.1.2.1. Gender Distribution Based on Railway Zone

Table 4.3.6: Zone-wise distribution of Gender group frequency

Gender	Eastern Railways		Northeast Frontier Railways		South Eastern Railways	
	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)
Female	80	43.70	88	43.80	97	44.70
Male	103	56.30	113	56.20	120	55.30
Total	**183**	**100**	**201**	**100**	**217**	**100**

Table (Table 4.3.6) indicated that 43.7% of respondents of Eastern Railways were female and 56.3% of respondents were male. Similarly, 43.8% of respondents of Northeast Frontier Railways were female. Likewise, 56.2% of respondents were male and, 44.7% respondents of South Eastern Railways are female and 55.3% are male. Graph 4.9 presents a comparative graphical representation of Table 4.3.6.

Graph 4.9: Classification of Respondents Based on Gender (Based on Zone)
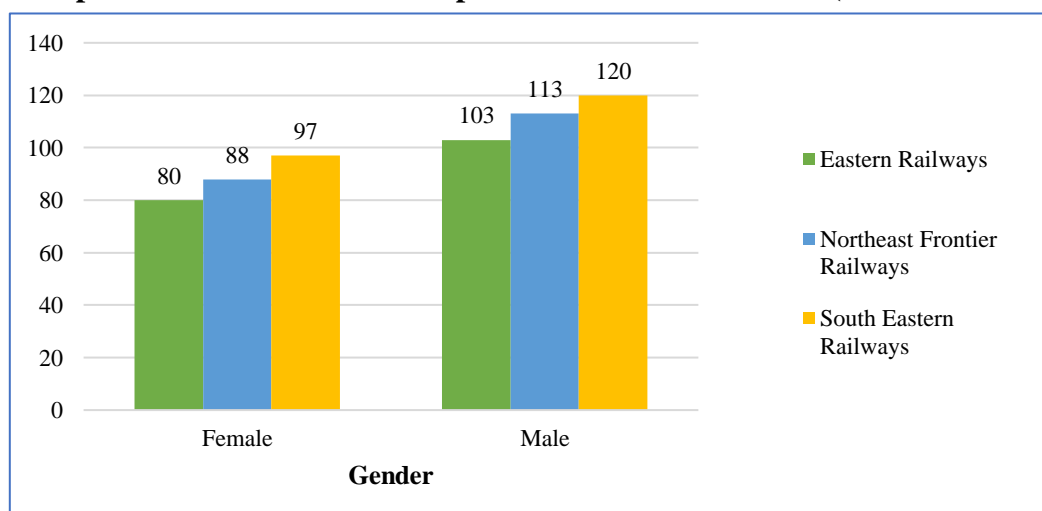
4.3.1.2.2. Age Distribution Based on Railway Zone

Table 4.3.7: Zone-wise distribution of Age group frequency

Age	Eastern Railways		Northeast Frontier Railways		South Eastern Railways	
	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)
18-28	70	38.30	71	35.30	116	53.50
29-38	47	25.70	37	18.40	36	16.60
39-48	30	16.40	35	17.40	28	12.90
49-58	31	16.90	31	15.40	28	12.90
59 and above	5	2.70	27	13.40	9	4.10
Total	**183**	**100**	**201**	**100**	**217**	**100**

Table 4.3.7 delineates the age profile of the respondents of the selected Railway Zones for the present study. It was observed for Eastern Railways Zone, that out of the total 183 respondents, 70 respondents (38.30%) were aged "18-28 years", 47 respondents (25.70%) were aged "29-38 years", 30 respondents (16.40%) were aged "39-48 years", 31 respondents (16.90%) were aged "49-58 years" and only 5 respo0ndents (6.80%) were aged "59 and above". For the Northeast Frontier Railways Zone, of the observed total 201 respondents, 71 respondents (35.3%) were of "18-28 years", 37 respondents (18.40%) were of "29-38 years", 35 respondents (17.40%) were of "39-48 years", 31 respondents (15.40%) were of "49-58 years" and, 27 respondents (13.40%) were "59 and above". Likewise, for South Eastern Railways Zone, the total respondents were 217, which included 116 respondents (53.50%) of "18-28 years", 36 respondents (16.60%) of "29-38 years", 28 respondents (12.90%) of "39-48 years", 28 respondents (12.90%) of "49-58 years" and, only 9 respondents (4.10%) of "59 and above". Graph 4.10 presents a comparative graphical representation of Table 4.3.7.

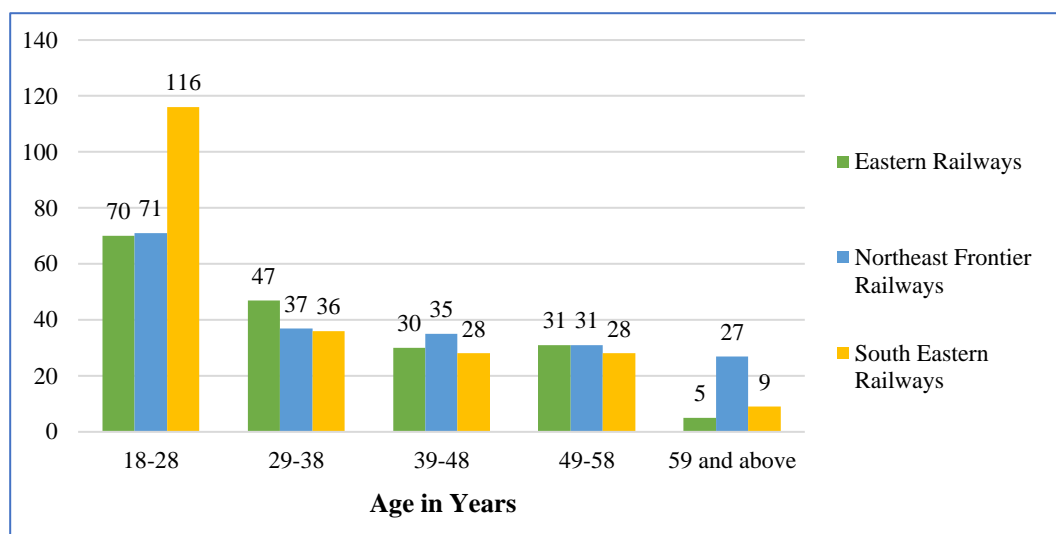**Graph 4.10: Classification of Respondents based on Age (Based on Zone)**

4.3.1.2.3. Educational Qualification Based on Railway Zone

Table 4.3.8: Zone-wise distribution of Educational Qualification group frequency

Educational Qualification	Eastern Railways		Northeast Frontier Railways		South Eastern Railways	
	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)
Matriculation	19	10.40	27	13.40	30	13.80
Higher Secondary	27	14.80	25	12.40	27	12.40
Graduate	78	42.60	78	38.80	81	37.30
Post Graduate/Masters	56	30.60	61	30.30	71	32.70
M.Phil./PhD	1	0.50	9	4.50	6	2.80
Others	2	1.10	1	0.50	2	0.90
Total	**183**	**100**	**201**	**100**	**217**	**100**

Table 4.3.8 articulates, the Educational Qualification of the respondents of the selected three Railway Zones. In Eastern Railways Zone, of the total 183 respondents, 19 respondents (10.40%) were "Matriculation" qualified, 27 respondents (14.80%) were "Higher Secondary" qualified, 78 respondents (42.60%) were "Graduate" degree holders, 56 respondents (30.60%) had "Post Graduate/Masters" degrees, only 1 respondent (0.50%) had "M.Phil./PhD" degree and, only 2 respondents (1.10%) had

opted "Others" as their educational qualification. Similarly, for Northeast Frontier Railways Zone, there were total 201 respondents, of which 27 respondents (13.40%) were "Matriculation" qualified, 25 respondents (12.40%) were "Higher Secondary" qualified, 78 respondents (38.80%) were "Graduate" degree holders, 61 respondents (30.30%) had "Post Graduate/Masters" degrees, 9 respondents (0.50%) had "M.Phil./PhD" degrees and, only 1 respondents (0.50%) had "Others" as their educational qualification. Lastly, in the South Eastern Railway Zone there was a total of 217 respondents, where, 30 respondents (13.80%) were "Matriculation" qualified, 27 respondents (12.40%) were "Higher Secondary" qualified, 81 respondents (37.30%) were "Graduate" degree holders, 71 respondents (32.70%) had "Post Graduate/Masters" degrees, 6 respondents (2.80%) had "M.Phil./PhD" degree and, only 2 respondents (0.90%) had "Others" as their educational qualification. Graph 4.11 presents a comparative graphical representation of Table 4.3.8.

Graph 4.11: Classification of Respondents Based on Educational Qualification (Based on Zone)
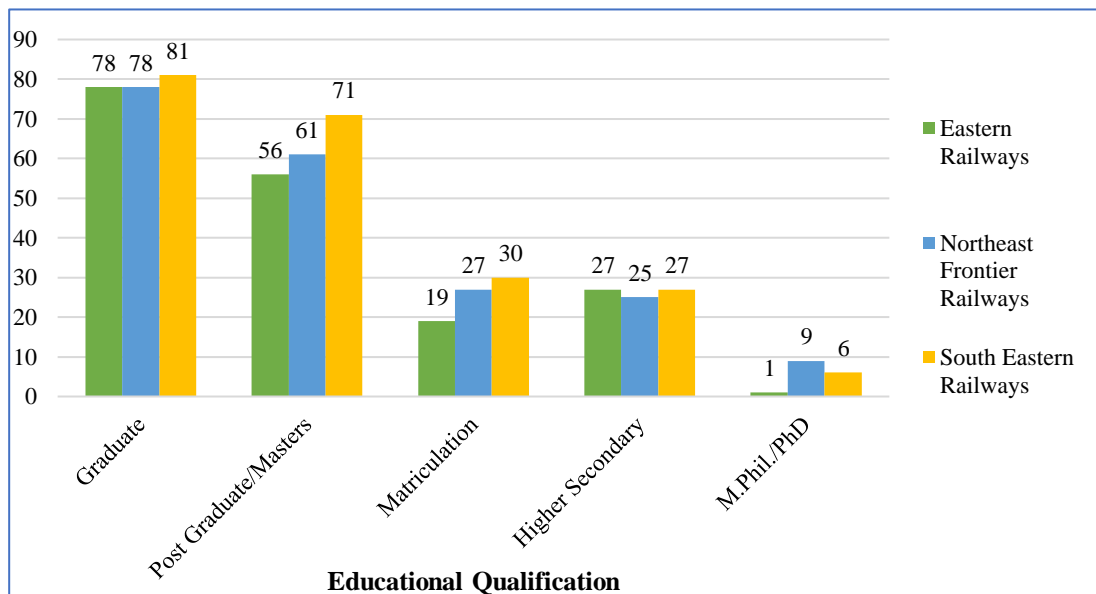
4.3.1.2.4. Occupation Distribution Based on Railway Zone

Table 4.3.9: Zone-wise distribution of Occupation group frequency

Occupation	Eastern Railways		Northeast Frontier Railways		South Eastern Railways	
	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)	Frequency in No.'s (N)	Percentage (%)
Government Service	35	19.10	64	31.80	53	24.40
Housewife	36	19.70	28	13.90	14	6.50
Private Service	38	20.80	30	14.90	38	17.50
Self-employed	25	13.70	27	13.40	41	18.90
Student	48	26.20	48	23.90	71	32.70
Retired Personnel	1	0.50	4	2.00	0	0.00
Total	**183**	**100**	**201**	**100**	**217**	**100**

Table 4.3.9 vitrines the occupational profile of the respondents in the three selected Railway Zones. As such, of the 183 respondents of the Eastern Railways Zone, 35 respondents (19.10%) were "Government Service" holders, 36 respondents (19.70%) were "Housewives", 38 respondents (20.80%) were in "Private Service", 25 respondents (13.70%) were "Self-employed", 48 respondents (26.20%) were "Students" and only 1 respondent (0.40%) was a "Retired Personnel". Of the total 201 respondents of Northeast Frontier Railways Zone, 64 respondents (31.80%) were "Government Service" holders, 28 respondents (13.90%) were "Housewives", 30 respondents (14.90%) were in "Private Service", 27 respondents (13.40%) were "Self-employed", 48 respondents (23.90%) were "Students" and only 4 respondents (2.00%) were "Retired Personnel". Similarly, for South Eastern Railways Zone, the total respondents were 217, where, 53 respondents (24.40%) were "Government Service" holders, 14 respondents (6.50%) were "Housewives", 38 respondents (17.50%) were in "Private Service", 41 respondents (18.90%) were "Self-employed" and, 71 respondents (32.70%)

were "Students". Graph 4.12 presents a comparative graphical representation of Table 4.3.9.

Graph 4.12: Classification of Respondents Based on Occupation (Based on Zone)
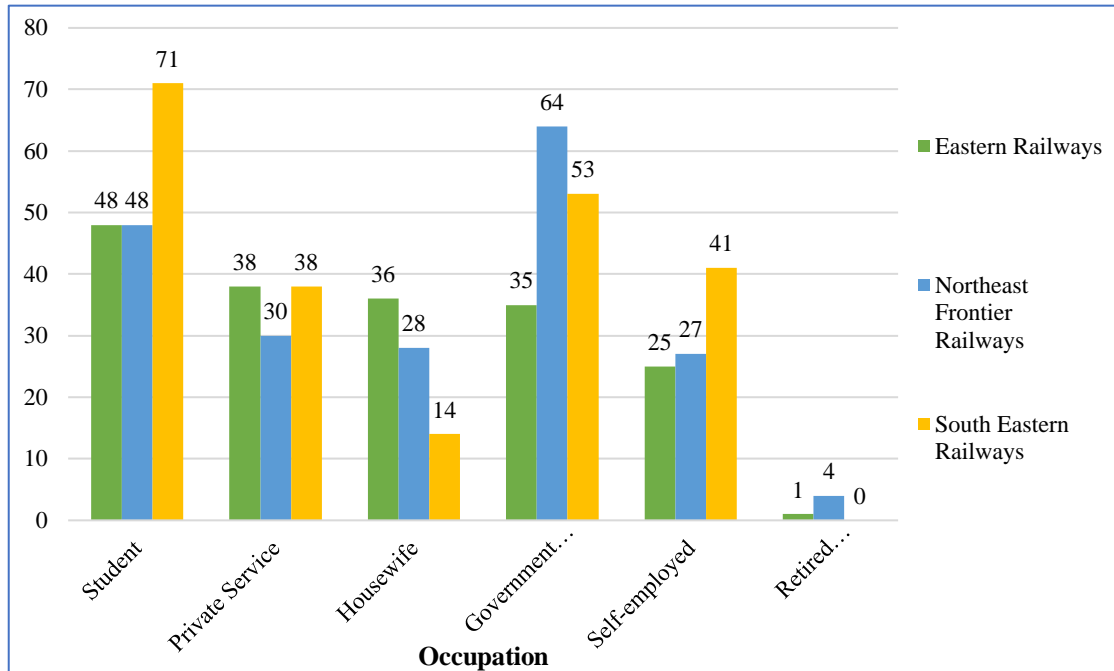
4.3.2. ANOVA Factor Score

The present section aims to study the factors of customer engagement towards the services of Indian Railways on their social media handles. It works towards identifying the relationship between demographics and the factors of customer engagement. The demographic setting of the respondents is not uniform across the three considered railway zones. Invariably, each respondent differs from the other in any demographic variables related to him/her. Hence, customer engagement among the respondents is analysed from the point of view of their demographic variables.

H2$_0$: There is no difference in the population means of all age groups regarding customer engagement on social media handles of Indian Railways.

Table 4.3.10: Difference of Customer Engagement Mean Based on Age (One-way ANOVA)

Source		Sum of Squares	Df	Mean Square	F	Sig.
Identification	Between Groups	6.212	4	1.553	2.777	0.026
	Within Groups	333.258	596	0.559		

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	Total	339.47	600			
Enthusiasm	Between Groups	7.129	4	1.782	3.021	0.017
	Within Groups	351.572	596	0.59		
	Total	358.701	600			
Attention	Between Groups	4.384	4	1.096	2.576	0.037
	Within Groups	253.621	596	0.426		
	Total	258.005	600			
Absorption	Between Groups	8.002	4	2	3.498	0.008
	Within Groups	340.818	596	0.572		
	Total	348.82	600			
Interaction	Between Groups	8.136	4	2.034	3.568	0.007
	Within Groups	339.795	596	0.57		
	Total	347.931	600			

To identify the influence in customer engagement on social media handles of Indian Railways with respect to demographic variables, one-way ANOVA was conducted. The hypothesis tests if customer engagement on social media handles of Indian Railways differs across age groups was tested. Respondents were divided into five groups (Group 1: 18 – 28 years; Group 2: 29 – 38 years; Group 3: 39 – 48 years; Group 4: 49 – 59 years; Group 5: 59 years and above). Customer engagement was studied via four constructs, including "Identification", which includes the antecedents of self-identity, brand personality, rapport and, relevancy between the respondents and the organisation; followed by construct of "Enthusiasm", which infers the brand enthusiasm by the respondents; then followed by the construct "Attention", which encompasses the motivational alliance of the respondents and customer friendly behaviour of the organisation; followed by the construct "Absorption", which includes the aspects of brand belongingness, attitude and dearness and bonding between the respondents and the organisation; and lastly, "Interaction", which talks about the social group interaction and consciousness, brand cocreation and, accommodative response of the respondents towards the organisation, on their social media handles. The result of the ANOVA reveals that the score of effect on customer engagement on social media handles of Indian Railways differs across age groups are ($F_{4,596} = 2.777$, p < 0.05); ($F_{4,596} = 3.021$, p < 0.05); ($F_{4,596} = 2.576$, p < 0.05); ($F_{4,596} = 3.498$, p < 0.05); and, ($F_{4,596} = 3.568$, p < 0.05). The results show a significant difference in the groups

as well as a difference in customer engagement on social media handles of Indian Railways across various age groups. Thus, it has led to the rejection of the null hypothesis.

Various factors relate towards age affecting the customer engagement towards Indian railways on their social media platforms. It was found that the frequency distribution among the age group of 18–28-year-old was prominent (Graph 4.4 and Graph 4.10) due to their readiness to adopt new technologies and their subsequent predominant presence on various social media platforms. It was also found that people in this category were readily participative in social activities and was curious as to what new developments were being brought forth by Indian Railways. This allows them to be aware of organizations' various social media handles and voice their issues and approvals on the organizations' social media handles.

H3₀: There is no difference in the population means of all gender groups regarding customer engagement on social media handles of Indian Railways.

Table 4.3.11: Difference in Customer Engagement Mean Based on Gender (One-way ANOVA)

Source		Sum of Squares	df	Mean Square	F	Sig.
Identification	Between Groups	0.536	1	0.536	1.202	0.273
	Within Groups	267.033	599	0.446		
	Total	267.569	600			
Enthusiasm	Between Groups	0.399	1	0.399	1.04	0.308
	Within Groups	229.72	599	0.384		
	Total	230.118	600			
Attention	Between Groups	0.346	1	0.346	1.112	0.292
	Within Groups	186.412	599	0.311		
	Total	186.758	600			
Absorption	Between Groups	0.034	1	0.034	0.061	0.805
	Within Groups	331.783	599	0.554		
	Total	331.817	600			
Interaction	Between Groups	0.028	1	0.028	0.049	0.825

	Within Groups	347.903	599	0.581		
	Total	347.931	600			

To identify the influence in customer engagement on social media handles of Indian Railways with respect to demographic variables, one-way ANOVA was conducted. The hypothesis tests if customer engagement on social media handles of Indian Railways differs across gender groups was tested. Respondents were divided into two groups (Group 1: Male; Group 2: Female). Customer engagement was studied via four constructs, including "Identification", which includes the antecedents of self-identity, brand personality, rapport and, relevancy between the respondents and the organisation; followed by construct of "Enthusiasm", which infers the brand enthusiasm by the respondents; then followed by the construct "Attention", which encompasses the motivational alliance of the respondents and customer friendly behaviour of the organisation; followed by the construct "Absorption", which includes the aspects of brand belongingness, attitude and dearness and bonding between the respondents and the organisation; and lastly, "Interaction", which talks about the social group interaction and consciousness, brand cocreation and, accommodative response of the respondents towards the organisation, on their social media handles. The result of the ANOVA reveals that the score of effect on customer engagement on social media handles of Indian Railways differs across gender groups ($F_{1,599} = 1.202$, p > 0.05); ($F_{1,599} = 1.04$, p > 0.05); ($F_{1,599} = 1.112$, p > 0.05); ($F_{1,599} = 0.061$, p > 0.05); and, ($F_{1,599} = 0.049$, p > 0.05). The results show no significant difference in the groups as well as no difference in customer engagement on social media handles of Indian Railways across various gender groups. Thus, the null hypothesis is accepted implying that gender has no effect on customer engagement on social media handles of Indian Railways.

Even though gender had no effect on the customer engagement towards Indian Railways on their social media handles, the low rate of female respondents must be noted due to security issues, even with increased quota allotment from them and lower fare offers. Most of the female respondents were students and availed the services of Indian Railways because they had ready access to student passes and being in the category of tribal people additional fringe benefits were also provided. Even after all

these initiatives provided by Indian Railways safety still remains a major concern for females availing the services of Indian Railways in the Northeast region of India.

H4₀: There is no difference in the population means of all educational qualification groups regarding customer engagement on social media handles of Indian Railways.

Table 4.3.12: Difference in Customer Engagement Mean Based on Educational Qualification (One-way ANOVA)

Source		Sum of Squares	df	Mean Square	F	Sig.
Identification	Between Groups	3.907	5	0.781	1.763	0.118
	Within Groups	263.662	595	0.443		
	Total	267.569	600			
Enthusiasm	Between Groups	19.75	5	3.95	11.172	0
	Within Groups	210.369	595	0.354		
	Total	230.118	600			
Attention	Between Groups	0.879	5	0.176	0.563	0.729
	Within Groups	185.879	595	0.312		
	Total	186.758	600			
Absorption	Between Groups	1.866	5	0.373	0.673	0.644
	Within Groups	329.951	595	0.555		
	Total	331.817	600			
Interaction	Between Groups	1.808	5	0.362	0.622	0.683
	Within Groups	346.122	595	0.582		
	Total	347.931	600			

To identify the influence in customer engagement on social media handles of Indian Railways with respect to demographic variables, one-way ANOVA was conducted. The hypothesis tests if customer engagement on social media handles of Indian Railways differs across educational qualification groups was tested. Respondents were divided into six groups (Group 1: Matriculation; Group 2: Higher Sceondary; Group 3: Graduate; Group 4: Post Graduate/Masters; Group 5: M.Phil./PhD; Group 6: Others). Customer engagement was studied via four constructs, including "Identification", which includes the antecedents of self-identity,

brand personality, rapport and, relevancy between the respondents and the organisation; followed by construct of "Enthusiasm", which infers the brand enthusiasm by the respondents; then followed by the construct "Attention", which encompasses the motivational alliance of the respondents and customer friendly behaviour of the organisation; followed by the construct "Absorption", which includes the aspects of brand belongingness, attitude and dearness and bonding between the respondents and the organisation; and lastly, "Interaction", which talks about the social group interaction and consciousness, brand cocreation and, accommodative response of the respondents towards the organisation, on their social media handles. The result of the ANOVA reveals that the score of effect on customer engagement on social media handles of Indian Railways differs across educational qualification groups ($F_{5,595}$ = 1.763, p > 0.05); ($F_{5,595}$ = 11.172, p < 0.05); ($F_{5,595}$ = 0.563, p > 0.05($F_{5,595}$ = 0.673, p > 0.05); and, ($F_{5,595}$ = 0.622, p > 0.05). The results show no significant difference in the groups as well as no difference in customer engagement on social media handles of Indian Railways across various educational qualification groups. Thus, the null hypothesis is accepted implying that educational qualification has no effect on customer engagement on social media handles of Indian Railways.

The educational qualification of the respondents did not result in affecting the customer engagement of individuals towards the social media handles on Indian Railways. Even with concession rules for students like free travel facility for college girls (till post-graduation) having monthly season tickets, and free for boys till their higher secondary for monthly season tickets. Also, there is a certain per cent discount for other categories of students like students belonging to schedule caste/tribes, research students, government students travelling for entrance exams, students from government schools located in a rural area, foreign students studying in India and students enrolled in marine engineer apprentices going for merchant marine shipping or engineering training and army cadets. It was a conductive aspect which reflected that education qualification does not affect customer engagement until the people are aware of the new technologies and platforms used for customer engagement by the Indian Railways. Previous studies by So et al. (2014), and Diwedi (2011), had also aptly pointed out in their studies that lack of awareness towards a customer engagement channel is not reflected by the educational qualification of an individual.

H5₀: There is no difference in the population means of all occupational groups regarding customer engagement on social media handles of Indian Railways.

Table 4.3.13: Difference in Customer Engagement Mean Based on Occupation

(One-way ANOVA)

Source		Sum of Squares	df	Mean Square	F	Sig.
Identification	Between Groups	1.41	5	0.282	0.631	0.677
	Within Groups	266.159	595	0.447		
	Total	267.569	600			
Enthusiasm	Between Groups	1.244	5	0.249	0.647	0.664
	Within Groups	228.874	595	0.385		
	Total	230.118	600			
Attention	Between Groups	2.572	5	0.514	1.662	0.142
	Within Groups	184.186	595	0.31		
	Total	186.758	600			
Absorption	Between Groups	3.342	5	0.668	1.211	0.303
	Within Groups	328.475	595	0.552		
	Total	331.817	600			
Interaction	Between Groups	0.71	5	0.142	0.243	0.943
	Within Groups	347.221	595	0.584		
	Total	347.931	600			

To identify the influence in customer engagement on social media handles of Indian Railways with respect to demographic variables, one-way ANOVA was conducted. The hypothesis tests if customer engagement on social media handles of Indian Railways differs across occupational groups was tested. Respondents were divided into six groups (Group 1: Student; Group 2: Housewife; Group 3: Government Service; Group 4: Private Service; Group 5: Retired Personnel; Group 6: Self-employed). Customer engagement was studied via four constructs, including "Identification", which includes the antecedents of self-identity, brand personality, rapport and, relevancy between the respondents and the organisation; followed by construct of "Enthusiasm", which infers the brand enthusiasm by the respondents; then followed by the construct "Attention", which encompasses the motivational alliance of the respondents and customer friendly behaviour of the organisation; followed by the

construct "Absorption", which includes the aspects of brand belongingness, attitude and dearness and bonding between the respondents and the organisation; and lastly, "Interaction", which talks about the social group interaction and consciousness, brand cocreation and, accommodative response of the respondents towards the organisation, on their social media handles. The result of the ANOVA reveals that the score of effect on customer engagement on social media handles of Indian Railways differs across occupational groups ($F_{5,595} = 0.631$, $p > 0.05$); ($F_{5,595} = 0.667$, $p > 0.05$); ($F_{5,595} = 1.662$, $p > 0.05$); ($F_{5,595} = 1.211$, $p > 0.05$); and, ($F_{5,595} = 0.243$, $p > 0.05$). The results show no significant difference in the groups as well as no difference in customer engagement on social media handles of Indian Railways across various occupational groups. Thus, the null hypothesis is accepted implying that occupation has no effect on customer engagement on social media handles of Indian Railways.

In all three zones, the respondents were students and were either graduates/postgraduates or were pursuing graduation/post-graduation. For the Northeast Frontier Railway Zone, the government employees travel longer distances to reach their work destination which are located in rural areas. As such they need to travel similar routes daily or at regular intervals. Availing the services of Indian Railways is feasible due to their policy for government employee customers (pass system, token system and quota travel costing). This has resulted in the government employees of Northeast Frontier Railways Zone to avail the services of Indian Railways primarily. For the other two railway zones the opposite was observed as there was a rise in private service employees. Even with this observation the non-effect of occupation on customer engagement towards Indian Railways on their social media handles is primarily because respondents availed the services of Indian Railways as a last resort or due to spontaneous plans which has no linkage with the occupation the respondent was in.

H6₀: There is no difference in the population means of all Railway Zones regarding customer engagement on social media handles of Indian Railways.

Table 4.3.14: Difference in Customer Engagement Mean Based on Railway Zone (One-way ANOVA)

Source		Sum of Squares	df	Mean Square	F	Sig.
Identification	Between Groups	0.083	2	0.041	0.093	0.911

	Within Groups	267.486	598	0.447		
	Total	267.569	600			
Enthusiasm	Between Groups	0.51	2	0.255	0.664	0.515
	Within Groups	229.608	598	0.384		
	Total	230.118	600			
Attention	Between Groups	0.211	2	0.106	0.339	0.713
	Within Groups	186.547	598	0.312		
	Total	186.758	600			
Absorption	Between Groups	0.893	2	0.446	0.807	0.447
	Within Groups	330.924	598	0.553		
	Total	331.817	600			
Interaction	Between Groups	0.248	2	0.124	0.213	0.808
	Within Groups	347.683	598	0.581		
	Total	347.931	600			

To identify the influence in customer engagement on social mediav handles of Indian Railways with respect to demographic variables, one-way ANOVA was conducted. The hypothesis tests if customer engagement on social media handles of Indian Railways differs across Railway Zones was tested. Respondents were divided into groups (Group 1: Eastern Railways; Group 2: Northeast Frontier Railways; Group 3: South Eastern Railways). Customer engagement was studied via four constructs, including "Identification", which includes the antecedents of self-identity, brand personality, rapport and, relevancy between the respondents and the organisation; followed by construct of "Enthusiasm", which infers the brand enthusiasm by the respondents; then followed by the construct "Attention", which encompasses the motivational alliance of the respondents and customer friendly behaviour of the organisation; followed by the construct "Absorption", which includes the aspects of brand belongingness, attitude and dearness and bonding between the respondents and the organisation; and lastly, "Interaction", which talks about the social group interaction and consciousness, brand cocreation and, accommodative response of the respondents towards the organisation, on their social media handles. The result of the ANOVA reveals that the score of effect on customer engagement on social media handles of Indian Railways differs across Railway Zones ($F_{2,598} = 0.093$, $p > 0.05$); ($F_{2,598} = 0.664$, $p > 0.05$); ($F_{2,598} = 0.339$, $p > 0.05$); ($F_{2,598} = 0.807$, $p > 0.05$); and, ($F_{2,598}$

= 0.213, p > 0.05). The results show no significant difference in the groups as well as no difference in customer engagement on social media handles of Indian Railways across various Railway Zones. Thus, the null hypothesis is accepted implying that Railway Zones has no effect on customer engagement on social media handles of Indian Railways.

When we consider the demographic variable of Railway Zone, even that was not found to have any effect on the customer engagement towards the social media handles of Indian Railways. It was so because these zones are overlapping when looked into geographically. The zone division was done based on the population of the area, hence, when considering the state of West Bengal, three such Railway Zones emerged in which the Northeast Frontier Railways included the states constituting the seven sisters. As such the effect on customer engagement cannot be a unified resultant on the constituting states. For states of the Northeast India much concessions and lesser long route trains are available than that of the state of West Bengal. Even with these fringe benefits the people avail lesser train journeys citing the reason of spending more than twenty-four hours to reach their destination. So due to their less availing of the Indian Railways facilities the phenomenon of customer engagement is lesser.

4.3.3. Pearson Correlation Coefficient

The Pearson correlation coefficient is an important method to measure the similarity of multiple data variables. Its value is between $[-1,1]$. When the correlation coefficient equals 1, it becomes a completely positive correlation; when it equals -1, it becomes a completely negative correlation. It means that the greater the absolute value of the correlation coefficient, the stronger the correlation and vice versa.

H7$_0$: There is no correlation between the factors of customer engagement for Eastern Railways.

The following Table 4.3.15 shows the details of the correlation between the factors of customer engagement on the social media handles of Indian Railways for the Eastern Railways.

Table 4.3.15: Pearson Correlation Matric for Eastern Railways

		Identification	Enthusiasm	Attention	Absorption	Interaction
Identification	Pearson Correlation	1	0.194	0.209	-0.018	0.114
	Sig. (2-tailed)		0.009	0.005	0.006	0.005
	N	183	183	183	183	183
Enthusiasm	Pearson Correlation	0.194	1	0.024	0.123	0.027
	Sig. (2-tailed)	0.009		0.004	0	0.007
	N	183	183	183	183	183
Attention	Pearson Correlation	0.209	0.024	1	-.161	.164
	Sig. (2-tailed)	0.005	0.004		0.001	0.027
	N	183	183	183	183	183
Absorption	Pearson Correlation	-0.018	0.123	-.161	1	.241
	Sig. (2-tailed)	0.006	0	0.001		0.001
	N	183	183	183	183	183
Interaction	Pearson Correlation	0.114	0.027	.164	.241	1
	Sig. (2-tailed)	0.005	0.007	0.027	0.001	
	N	183	183	183	183	183

The results indicate a significant positive relationship between identification and enthusiasm, [r(183)=0.194, p=0.009]. There is a significant positive relationship between identification and attention, [r(183)=0.209, p=0.005]. In contrast, there is a significant negative relationship between identification and absorption [r(183)=-

0.018, p=0.006]. Also, there is a significant positive relationship between identification and interaction, [r(183)=0.114, p=0.005]. Secondly, there is a positive significant relationship between enthusiasm and attention, [r(183)=0.024, p=0.004]. There is a significant positive relationship between enthusiasm and absorption [r(183)=0.123, p=0.000] and also between enthusiasm and interaction [r(183)=0.027, p=0.007]. Thirdly, there is a significant negative relationship between attention and absorption,[r(183)=-0.161, p=0.001], while there is a significant positive relationship between attention and interaction [r(183)=0.164, p=0.027]. Lastly, there is a significant positive relationship between absorption and interaction, [r(183)=0.205, p=0.000]. Thus, the null hypothesis H6$_0$ was rejected as there is a significant level of correlation between the factors of customer engagement for Eastern Railways.

H8$_0$: There is no correlation between the factors of customer engagement for Northeast Frontier Railways.

The following Table 4.3.16 shows the details of the correlation between the factors of customer engagement on the social media handles of Indian Railways for the Northeast Frontier Railways.

Table 4.3.16: Pearson Correlation Matric for Northeast Frontier Railways

		Identification	Enthusiasm	Attention	Absorption	Interaction
Identification	Pearson Correlation	1	.218	.288	-0.089	0.107
	Sig. (2-tailed)		0.002	0.000	0.009	0.029
	N	201	201	201	201	201
Enthusiasm	Pearson Correlation	.218	1	.160	.215	0.119
	Sig. (2-tailed)	0.002		0.023	0.002	0.001
	N	201	201	201	201	201
Attention	Pearson Correlation	.288	.160	1	-.154	0.103

	Sig. (2-tailed)	0.000	0.023		0.029	0.008
	N	201	201	201	201	201
Absorpti-on	Pearson Correlation	-0.089	.215	-.154	1	.180
	Sig. (2-tailed)	0.009	0.002	0.029		0.011
	N	201	201	201	201	201
Interacti-on	Pearson Correlation	0.107	0.119	0.103	.180	1
	Sig. (2-tailed)	0.029	0.001	0.008	0.011	
	N	201	201	201	201	201

The results indicate a significant positive relationship between identification and enthusiasm, [r(201)=0.218, p=0.002]. There is a significant positive relationship between identification and attention, [r(201)=0.200, p=0.000]. In contrast, there is a significant negative relationship between identification and absorption [r(201)=-0.089, p=0.009]. Also, there is a significant positive relationship between identification and interaction, [r(201)=0.107, p=0.029]. Secondly, there is a positive significant relationship between enthusiasm and attention, [r(201)=0.160, p=0.023]. There is a significant positive relationship between enthusiasm and absorption [r(201)=0.215, p=0.002] and also between enthusiasm and interaction [r(201)=0.119, p=0.001]. Thirdly, there is a significant negative relationship between attention and absorption, [r(201) = -0.154, p=0.029], while there is a significant positive relationship between attention and interaction [r(201)=0.103, p=0.008]. Lastly, there is a significant positive relationship between absorption and interaction, [r(201)=0.180, p=0.011]. Thus, the null hypothesis $H7_0$ was rejected as there is a significant level of correlation between the factors of customer engagement for Northeast Frontier Railways.

H9_0: There is no correlation between the factors of customer engagement for South Eastern Railways.

The following Table 4.3.17 shows the details of the correlation between the factors of customer engagement on the social media handles of Indian Railways for the Northeast Frontier Railways.

Table 4.3.17: Pearson Correlation Matric for South Eastern Railways

		Identification	Enthusiasm	Attention	Absorption	Interaction
Identification	Pearson Correlation	1	.245	.194	-0.05	0.095
	Sig. (2-tailed)		0.000	0.004	0.007	0.003
	N	217	217	217	217	217
Enthusiasm	Pearson Correlation	.245	1	0.088	.208	.173
	Sig. (2-tailed)	0.000		0.008	0.002	0.01
	N	217	217	217	217	217
Attention	Pearson Correlation	.194	0.088	1	-0.117	.275
	Sig. (2-tailed)	0.004	0.008		0.006	0.000
	N	217	217	217	217	217
Absorption	Pearson Correlation	-0.05	.208	-0.117	1	.199
	Sig. (2-tailed)	0.007	0.002	0.006		0.003
	N	217	217	217	217	217
Interaction	Pearson Correlation	0.095	.173	.275	.199	1
	Sig. (2-tailed)	0.003	0.01	0.000	0.003	
	N	217	217	217	217	217

The. results indicate a significant positive relationship between identification and enthusiasm, [r(217)=0.245, p=0.000]. There is a significant positive relationship between identification and attention, [r(217)=0.194, p=0.004]. In contrast, there is a significant negative relationship between identification and absorption [r(217) = -0.05, p=0.007]. Also, there is a significant positive relationship between identification and interaction, [r(217)=0.095, p=0.003]. Secondly, there is a positive significant relationship between enthusiasm and attention, [r(217)=0.088, p=0.008]. There is a significant positive relationship between enthusiasm and absorption [r(217)=0.208, p=0.002] and also between enthusiasm and interaction [r(217)=0.173, p=0.01]. Thirdly, there is a significant negative relationship between attention and absorption,[r(217) = -0.117, p=0.006], while there is a significant positive relationship between attention and interaction [r(217)=0.275, p=0.000]. Lastly, there is a significant positive relationship between absorption and interaction, [r(217)=0.199, p=0.003]. Thus, the null hypothesis H8$_0$ was rejected as there is a significant level of correlation between the factors of customer engagement for South Eastern Railways.

4.3.4. Interpretation and Hypotheses Testing

4.3.4.1. Interpretation of demographic analysis, ANOVA and Pearson Correlation Coefficient

An effort to analyze the effect of demographic variables on the identified factors of Identification, Enthusiasm, Attention, Absorption, and Interaction of customer engagement was done, starting with demographic characteristics. A frequency distribution report was formulated based on the responses recorded along with a crosstabulation report. ANOVA Factor Score was used to gain the relationship between the independent variables (demographic variables) and the dependent variable (customer engagement). Lastly, Pearson Correlation Coefficient was used to measure the linear relationship between the factors of customer engagement. In doing so this has aided in answering the research questions of the possibility of analyzing the Customer Engagement practices of Indian Railways on social media platforms, based on the framework/model developed and the effect of demographic variables on Indian Railways' use of social media handles for customer engagement.

Demographic variables of Age, Gender, Occupation, Educational Qualification and Railway Zone are considered for this study. The frequency distribution among the age group of 18–28-year-old was prominent due to their readiness to adopt new technologies and their subsequent predominant presence on various social media platforms. This allows them to be aware of organizations' various social media handles and voice their issues and approvals on their social media handles. On the gender front, the low rate of female respondents was due to security issues, even with increased quota allotment from them and lower fare offers. The educational qualification and occupation of the respondents were correlated, as respondents with a graduation degree were largely associated with those individuals who were pursuing further studies (Post graduation/Masters). The is reason behind this being the concession rules for students like free travel facility for college girls (till post-graduation) having monthly season tickets, and free for boys till their higher secondary for monthly season tickets. Also, there is a certain per cent discount for other categories of students like students belonging to schedule caste/tribes, research students, government students travelling for entrance exams, students from government schools located in a rural area, foreign students studying in India and students enrolled in marine engineer apprentices going for merchant marine shipping or engineering training and army cadets.

A cross-tabulation analysis studied the frequency distribution of the four demographic variables based on the Railway Zone. As this study is limited to three zones out of seventeen Indian Railways zones due to the pandemic regulations, an effort was made to evenly distribute the sample size equally among these three zones. Though uneven distribution can be seen between Eastern Railways and South Eastern Railways, as these two zones included the state of West Bengal and there happened to be an overlapping of certain junctions between the two Railway Zones. In all three Railway Zones, males were the chief respondents as they had mostly purchased a ticket for a destination as this was one of the screening questions which qualifies the respondents as a sampling unit for this study.

In all three zones, the respondents belonging to the age group of 18-28 years, was aided by the occupation and educational qualification of the respondents i.e., the respondents were students and were either graduates/postgraduates or were pursuing graduation/post-graduation. The reason for this is due to the availability of better

discounts, concessions and other offers for students. For the Northeast Frontier Railway Zone, the government employees travel longer distances to reach their work destination which are located in rural areas. As such they need to travel similar routes daily or at regular intervals. Availing the services of Indian Railways is feasible due to their policy for government employee customers (pass system, token system and quota travel costing). This has resulted in the government employees of Northeast Frontier Railways Zone to avail the services of Indian Railways primarily.

To identify the influence of the demographic variables on customer engagement towards the services of Indian Railways on social media handles, descriptive statistics and one-way ANOVA was conducted. For the one-way ANOVA, the independent variables were the demographic variables of Age, Gender, Educational Qualification, Occupation, and Railway Zone thus, providing the effect of demographic variables on customer engagement towards services of Indian Railways on their social media handles. Firstly, different age groups have a significant influence on customer engagement on the social media handles of Indian Railways [($F_{4,596} = 2.777$, $p < 0.05$); ($F_{4,596} = 3.021$, $p < 0.05$); ($F_{4,596} = 2.576$, $p < 0.05$); ($F_{4,596} = 3.498$, $p < 0.05$); and, ($F_{4,596} = 3.568$, $p < 0.05$)]. Secondly, different gender groups have no significant influence on customer engagement on the social media handles of Indian Railways [($F_{1,599} = 1.202$, $p > 0.05$); ($F_{1,599} = 1.04$, $p > 0.05$); ($F_{1,599} = 1.112$, $p > 0.05$); ($F_{1,599} = 0.061$, $p > 0.05$); and, ($F_{1,599} = 0.049$, $p > 0.05$)]. Thirdly, different educational qualification groups have no influence on customer engagement on the social media handles of Indian Railways [($F_{5,595} = 1.763$, $p > 0.05$); ($F_{5,595} = 11.172$, $p < 0.05$); ($F_{5,595} = 0.563$, $p > 0.05$($F_{5,595} = 0.673$, $p > 0.05$); and, ($F_{5,595} = 0.622$, $p > 0.05$)]. And lastly, different Railway Zone have no significant influence on customer engagement on the social media handles of Indian Railways [($F_{2,598} = 0.093$, $p > 0.05$); ($F_{2,598} = 0.664$, $p > 0.05$); ($F_{2,598} = 0.339$, $p > 0.05$); ($F_{2,598} = 0.807$, $p > 0.05$); and, ($F_{2,598} = 0.213$, $p > 0.05$)]. Thus, it was seen that the age group of the respondents have an influence on customer engagement on the social media handles of Indian Railways, implying the ready acceptance of technology and their awareness and presence on social media platforms with younger age groups readily accepting, moulding and aware of the social media platforms.

For a zone-wise Pearson correlation coefficient measure for Eastern Railways, Northeast Frontier Railways and, South Eastern Railways, there is a significant positive relationship between identification and enthusiasm, a significant positive relationship between identification and attention, a significant negative relationship between identification and absorption, a significant positive relationship between identification and interaction, a positive significant relationship between enthusiasm and attention, a significant positive relationship between enthusiasm and absorption, a significant positive relationship between enthusiasm and interaction, a significant negative relationship between attention and absorption, a significant positive relationship between attention and interaction, and lastly, there is a significant positive relationship between absorption and interaction.

4.3.4.2. Result of Hypothesis Testing

Table 4.4: Result of Hypotheses Testing

Hypotheses	Testing of Hypotheses
H1$_0$: There is no significant difference among the respondents belonging to different "Railway Zones" regarding customer engagement on social media handles of Indian Railways.	Accepted
H2$_0$: There is no difference in the population means of all age groups regarding customer engagement on social media handles of Indian Railways.	Rejected
H3$_0$: There is no difference in the population means of all gender groups regarding customer engagement on social media handles of Indian Railways.	Accepted
H4$_0$: There is no difference in the population means of all educational qualification groups regarding customer engagement on social media handles of Indian Railways.	Accepted
H5$_0$: There is no difference in the population means of all occupational groups regarding customer engagement on social media handles of Indian Railways.	Accepted

H6$_0$: There is no difference in the population means of all Railway Zones regarding customer engagement on social media handles of Indian Railways.	Accepted
H7$_0$: There is no correlation between the factors of customer engagement for Eastern Railways	Rejected
H8$_0$: There is no correlation between the factors of customer engagement for Northeast Frontier Railways	Rejected
H9$_0$: There is no correlation between the factors of customer engagement for South Eastern Railways	Rejected

A comparison of the responses shows that the respondents from the different Railway Zones have a similar view towards customer engagement on social media handles of Indian Railways (Table 4.2.2). Hence the null hypothesis H1$_0$ was accepted.

From the one-way ANOVA results it can be evidently said that except for the demographic variable of "Age", the other demographic variables such as "Educational Qualification", "Gender", "Occupation", and "Railway Zone" has no significant difference in mean customer engagement on the social media platforms of Facebook and Twitter of Indian Railways. Hence, we reject hypothesis H2$_0$ and we accept hypotheses H3$_0$, H4$_0$, H5$_0$ and H6$_0$.

From the Pearson Correlation Matrix, it was evidenced that for all the three zones considered in the study, that there was a positive correlation between the factors of customer engagement on social media handles of Indian Railways. Thus, the null hypotheses H7$_0$, H8$_0$, and H9$_0$ were rejected. This implied that with every change in one of the factors of customer engagement there was a significant positive or negative effect on the other factors. As such none of the factors could not operate in singularity without being affected by or affection the other factors. For instance if the level of interaction increases, the level of identification, enthusiasm, attention and absorption increases or decreases, and the can be held true for the other factors as well. Therefore, we reject the null hypotheses H7$_0$, H8$_0$, and H9$_0$.

5. SUMMARY, DISCUSSION, AND CONCLUSION OF THE STUDY

The findings of the study, key recommendations, managerial implications, conclusion and the scope of future research work are all detailed in this chapter.

5.1. Summary

Social media marketing for any government agency or department is difficult since it targets the broader population. Thus, in the case of Indian Railways, such platforms are used for disseminating information and its posts mainly capture, hold, and inform passengers' attention for the latest issues and development. Indian Railways has additionally utilised social media to understand its customers' wants and expectations, encourage customer interaction and retention, develop extra income possibilities, enhance brand loyalty, and establish organisational perception as a catalyst for customer engagement.

Indian Railways has been using social media to broadcast the Union Government initiatives, ask for ideas from the public to improve their existing services, bring forward new services, or improve problematic areas, promote safety measures that can be taken by the public as well as the safety measures present for them, disseminate information, and to have a quick and responsive complaint redressal system.

Indian Railways hired a team of expert public relations professionals in June 2019 to execute its marketing campaign at its central office and in their zones under a set of standards. In a scenario where Railways face tough competition from airlines, the structure of 70 officials, including the one chief Public Relations Officer (PRO) of each of the 17 zones, who were responsible for social media distribution was recommended to be modified to improve publicity reach. These teams would build plans for Facebook, Twitter, Instagram, and other social media platforms to identify problems, topics, and social media influencers to influence perception of target audience and build positive relationships and enhance brand image. This involves building a dashboard on their zones' websites with news stories, TV footage, and other content to humanise Indian Railways' consumers. Each team was advised to collaborate with national analysts and present reports to high authorities to gain consumer trust.

The purpose of this study was to develop a framework for analysing the effect of demographic variables on the identified factors (from the developed framework) of customer engagement toward the services of Indian Railways on social media

handles. The framework that was being developed is intended to be used in a future study.

Using keyword co-occurrence analysis, which is a component of the bibliometric analysis done in the first goal, it was inferred that current research on this issue focuses on customer engagement as a tool to influence consuming behaviours, customer engagement in social media, customer engagement as a strategy to win customers, variations in consumer engagement behaviour, customer relationship management via customer engagement, and customer engagement in electronic commerce. Co-citation analysis, which was conducted as part of the same bibliometric investigation, was therefore useful in determining twenty relevant models and theories for the study's conceptual model. Following extensive research and evaluation of the aforementioned models and concepts, the resulted conceptual model of the study included twelve antecedents organised under five overarching elements.

Thus the factors of customer engagement for the study were: Identification, Enthusiasm, Attention, Absorption and Interaction which was constructed under factor analysis adopted for achieving the second objective. The customer engagement was measured along these factors. Exposure and awareness of various social media platforms and social media handles of Indian Railways could be and has been considered as the pre-requisite to the factors of customer engagement. "Identification" highlighted the company's self-identity, brand personality, rapport, and connection to customers. These expressions suggest people identify with the firm, the first step towards customer engagement. "Enthusiasm" assessed customers' social media engagement. "Attention", the key to engagement, was the third component. "Absorption" was the fourth aspect of effective client engagement, describing complete attention, enjoyment, and participation in the brand. "Interaction," the fifth and final part, completed the customer engagement loop by showing the consumer's deeper engagement with the company.

Demographic characteristics were examined, under the third objective, in relation to customer Identification, Enthusiasm, Attention, Absorption, and Interaction. Demographic characteristics included "Age", "Gender", "Occupation", "Educational Qualification", and "Railway Zone" in this study. Respondents of the age group of 18-28 years were open to new technologies and had a strong social media presence and

awareness. Also, due to reasons such as limited financial funds and dependency on parents, the respondents in this category were either students who had just graduated or were pursuing their graduation/post-graduation. Female respondents cited safety reasons for not availing Indian Railways services even after fare concessions by Indian Railways for them.

Cross-tabulation examined the Railway Zone's four demographics. Pandemic rules had limited this study to three out of seventeen Indian Railways zones. When talking of gender, males responded to have purchased a destination ticket for Indian Railways in most of the cases in comparison to their female counterparts. Responses of the respondents of the age group 18-28 years old, were predominantly students with either graduate/postgraduate qualification or pursuing graduation or postgraduation degree, as Indian Railways have various beneficial schemes for them such as student discounts, concessions, and other benefits. For Northeast Frontier Railways Zone, the frequent travelling between stations to reach their work destination by the government employees made them traveling by Indian Railways logical due to its polices for government employees (pass system, token system etc.).

Next, a one-way-ANOVA was conducted to study the influence of demographic variables on customer engagement towards Indian Railways social media handles. The demographic variables for one-way ANOVA were Age, Gender, Occupation, Educational Qualification, and Railway Zone. Pearson coefficients were measured generally and zone-by-zone. Identification, Attention, Absorption, Interaction, and Enthusiasm were found to be all positively correlated.

5.2. Findings and Discussion

Objective 1: To identify a customer engagement framework for Indian Railways through Bibliometric Analysis.

From this study important insights were found, advancing the study's conceptual understanding and framework formation suitable for analysing the effect of customer engagement of Indian Railways on their social media handles. Research papers on government social media use have grown exponentially from 2010 to 2022. Studies on customer engagement showed that government services and offices were increasingly using social media for customer engagement. The United States, Spain, the United

Kingdom, the Netherlands, and Greece have undertaken the most research in this field. India and China reported fewer such research. Prospective writers from these nations had collaborated with western authors from the U.S., U.K., Australia, New Zealand, and Canada.

The bibliometric study further found more than fifty journals that contributed to the research of government services' social media engagement. Most of these periodicals were government and administrative review journals, therefore their articles reflected information transmission and development rather than analytical studies. The overview of associated research focused on human society, notably the execution of consumer policies and digital platforms to distribute them. Social media has been utilised to expand government agencies' understanding of different sectors, people's health and well-being, and how to engage with them. Also, bibliometric coupling based on documents, sources, and authors highlighted current research in government services' social media customer engagement. Consumer engagement and online communities, modelling of customer interaction, empirical validation and theoretical conceptualization, customer engagement and social media, and contextual customer engagement have arisen as study topics.

Co-citation analysis revealed three theoretical areas: consumer brand community engagement, customer engagement concepts, implementation, and models, and online and digital customer engagement. Co-citation analysis also revealed themes of government data, politics, public administration, ethics, marketing research, Internet Technology (IT), and social services. These topics helped identify core models for this study.

Keyword co-occurrence analysis implied that current research on this subject focuses on customer engagement as a tool to influence consuming behaviours, customer engagement in social media, customer engagement as a strategy to gain customers, variances in consumer engagement behaviour, customer relationship management via customer engagement, and customer engagement in electronic commerce. Co-citation analysis thus helped to identify twenty related models and theories for the study's conceptual model. After studying and analysing these ideas and models, the final conceptual model of the study included twelve antecedents grouped by five broad factors was formed.

Objective 2: To determine the factors affecting customer engagement towards the services of Indian Railways on social media handles.

Factor analysis was performed on the composite set of respondents after testing for significant differences in viewpoint amongst Railway Zones. The mean F-ratio scores varied from 3.94 on statement S22 (I think that the organisation has a genuine concern for its customers) to 2.83 on statement S3 (I keenly notice information related to the organization). Statement S22 scored well because most respondents believe that Indian Railways pays attention to its consumers and that customers pay attention to its social media posts. The high mean scores of 3.92 on statement S4 (I feel the organisation serves every customer need), 3.87 on S13 (I pay a lot of attention to anything about the organisation), 3.83 on S12 (I like to learn more about this organization's online community), and 3.86 on S18 (I feel the organisation has a strong understanding for customer's requirement) supported this. This suggests that creating a customer engagement process required both the organization's and consumers' Attention. Comparing responses from various Railway Zones revealed that Indian Railways' social media customer engagement views were comparable and that customers had a similar view towards the customer engagement initiatives by Indian Railways on their social media handles.

The Kaiser-Meyer-Olkin (KMO) score of 0.724 (between 0.6 and 1.0) and Bartlett's test of sphericity showed that factor analysis was suitable for this study dataset. Bartlett's Test of Sphericity showed that the correlation matrix is considerably different from an identity matrix, which have zero correlations between variables, as $p<0.001$ with df=406. Each statement's communality was over 0.4, showing that all components shared some variation. These findings suggested that factor analysis was appropriate for all twenty-nine statements. The first five components with eigenvalues larger than 1 were the extracted solution. The extracted solution's cumulative variability explained by these factors was roughly 76.5%, which is like the original solution, indicated that latent factors did not lose the initial solution. The rotational component matrix listed the five factors that influence consumer engagement in Indian Railways' three zones. Based on 601 respondents, a factor loading of 0.30 or higher was considerable (Hair et al., 2014). Varimax rotation was used to orthogonally rotate primary factors. Thus, Indian Railways' customer engagement in the three study zones had been defined by five primary factors.

The first factor had seven positively loaded statements, namely, "I feel a personal connection to the organisation," "When someone criticises this organisation on social media platforms, it feels like a personal insult," "When someone praises this organisation on social media platforms, it feels like a personal compliment," "I can identify with the organisations' goals," "I believe the organisation reflects the customers' wants and needs," and "I feel the organisations' successes are the customers' successes." These statements highlighted self-identity, brand personality, rapport, and relevance between the company and consumers. These words also suggested that consumers identified with the company, the first step toward customer engagement, thus the factor was colluded as "Identification".

Statements forming the second factor termed "Interaction" included, "The organisation provides platform for customer interaction," "I post suggestions in the organization's social media handles for service improvement," "I often visit the organization's social media handles and give feedback about their services," "The organisation formulates ideas through discussion and collaboration about the organisation with the customers on social media handles," and "I recommend the organization's services to friends & other groups of people." These statements demonstrated a customer's deeper engagement with the organization.

The statements namely, "I feel the organisation serves every customers need," "I think that the organisation has a genuine concern for its customers," "I feel that the organisation has a strong understanding for customer's requirement", "I like to learn more about this organisations' online community ", and "I pay a lot of attention to anything about the organisation" comprised factor three, and thus, had been named as "Attention". Academics have often stressed the importance of attention in customer engagement. Customers' interest in an organisation's content lead to engagement. Thus, this motivated customers to follow the organisation on various social media handles.

The fourth factor included the statements of "I have a sense of belongingness towards the organisation," "I feel emotionally connected to the organisation," "I feel convinced by the organisations' endorsement on social media handles," "I feel proud to recommend the services of the organisation," "I feel the organisation have a unique place in the mind of the customers," and "I feel the organisation shares the goals of its

customers". This factor has been characterized "Absorption" as the statements described a condition of undivided rapture, enjoyment, and involvement in the organisation that resulted from good customer engagement. Thus, such expressions defined consumers' attitudes, belonging, and connection with organisations' social media handles.

Factor five specified the statements "I am heavily into the organisation's social media handles", "I keenly notice information related to the organisation", "I enjoy spending time on the orgaisations' social media handles", and "I am passionate about the organisations' social media handles". This factor examined customers' social media engagement with the organisation as customers joined brand/organization communities and promoted them because of their enthusiasm for an organisation. Hence, this factor was clubbed "Enthusiasm".

In abridgement, the factor analysis identified the study's five variables. The first and most important component, "identification," emphasized the organization's self-identity, brand personality, rapport, and relevance to customers. These phrases implied that customers identify with the company, the first step towards customer engagement. The second element, "enthusiasm," measured customers' willingness to interact with the organization on social media. Enthusiasm for a brand/organization leads customers to join communities and/or promote it. The third component was called "attention" because it described the critical aspect of engagement: attentiveness. Customers' interest in a company's content increases their engagement. These comments outline why customers should follow the company on social media. The fourth factor, "absorption," described entire attention, enjoyment, and participation in the brand when customer engagement is effective. Such expressions define customers' attitudes, belonging, and connecting with the company's social media handles. The fifth and final aspect, "interaction," reflected the customer's engagement with the organisation beyond ordinary consumerist behaviour, thus, completing the loop of customer engagement.

Objective 3: To study the influence of demographics on customer engagement toward the services of Indian Railways on social media handles.

Demographic parameters were used to assess the influence of demographic variables on consumer Identification, Enthusiasm, Attention, Absorption, and Interaction. This study considered Age, Gender, Occupation, Educational Qualification, and Railway

Zone as the demographic variables. Due to their willingness to accept new technology and social media presence, respondents from the age group of 18-28 years were observed. Their adaptability to technology made them expressive and, drove them to have a better presence on social media platforms and in turn use these platforms to express their views. The low number of "female" responses could be related to security concerns, even with enhanced quotas and reduced fares. Student concessions like free travel for college girls (until graduation) with monthly season tickets and free for guys till high school, also, - schedule caste/tribe students, research students, government students travelling for entrance exams, students from rural government schools, foreign students studying in India, marine engineer apprentices going for merchant marine shipping or engineering training, and army cadets received a discount. These reasons constituted to students readily availing the services of Indian Railways.

The Railway Zone's four demographics were evaluated using cross-tabulation. This investigation was confined to three of the seventeen Indian Railways zones because to pandemic regulations. In most situations, men replied to having acquired a destination ticket for Indian Railways in contrast to their female counterparts. Respondents between the ages of 18 and 28 were predominantly students with either a graduate/postgraduate qualification or pursuing a graduation or postgraduate degree, as Indian Railways has a variety of beneficial schemes for them such as student discounts, concessions, and other benefits. The frequent travel between stations by government workers to achieve their job location makes travelling by Indian Railways logical owing to its policies for government employees (pass system, token system).

Major factors affecting Customer Engagement

- Every day, the Ministry of Railways receives approximately 14,000 tweets. Around a thousand of these are actionable. Managing tweets during peak hours is a huge problem, as this is when targets are most difficult to meet. Differentiating between actionable and frivolous tweets is also difficult. As more people use this service to voice their complaints or seek assistance, it remains to be seen how the Indian Railways can continue to use the Social Media Cell effectively to drive a strong connect between the Railways and its passengers for a better customer engagement towards the Indian Railways' social media handles.

- Indian Railways has a YouTube channel in addition to its Facebook page and Twitter handle. YouTube is used by IR to disseminate information and educate the public. The presence of IR on YouTube is still marginal, and IR should make better use of this presence. More safety messages that are directly relevant to the public, such as the risks associated with railway level crossings, would be welcome.

- Particularly for female passengers and members of underprivileged social groups, passenger safety is a crucial consideration in decision-making. Train travel is frequently chosen by customers because it is both seen as being safer than driving. Because of real-time monitoring and on-site reaction teams, the new social media offering considerably reinforces the notion of trains as a safer means of transportation. Nonaction would attract public mockery and improve openness, accountability, and trustworthiness as well since the claims and cries made through this media are completely open and visible.

- With the introduction of Twitter and Facebook, there is a clear bureaucratic chasm between customers and actual decision makers, as there is with many different types of complaint portals. However, it is becoming increasingly apparent that rail operators and entities are much more accountable, and the customer is much more powerful with a clearer transparent medium; this aspect allows railways to project itself as being attentive and sensitive to the needs of the customers.

- All the elements help to give railroads an emphatic reputation, but as railways has proven, no endeavor can be effective without clear and consistent execution. If early efforts are supported by constant results delivery, this will only help to further their reputation.

5.3. Hypotheses and Conclusion

To examine whether any significant differences exist among the respondents belonging to different Railway Zones concerning customer engagement on social media handles of Indian Railways, the following hypothesis was formed and F-ratios was calculated to the responses of each statement. Mean values of $H1_0$ have been presented in Table 4.2.2. The result of the hypothesis $H1_0$ has been summarized in Table 5.1 below.

Table 5.1: Hypothesis and Conclusion

Sl. No.	Hypothesis	Significance Level	Accepted/ Rejected
1	**H1₀:** There is no significant difference among the respondents belonging to different "Railway Zones" regarding customer engagement on social media handles of Indian Railways.	$p > 0.05$	Null Hypothesis Accepted

A comparison of the responses showed that the respondents from the different Railway Zones had a similar view towards customer engagement on social media handles of Indian Railways. Hence the null hypothesis $H1_0$ was accepted. Taking this into consideration factor analysis was applied on the aggregate group of respondents and not on individual Railway Zone.

To understand the influence of demographics on customer engagement towards the services of Indian Railways on social media handles, it was imperative to conduct one-way ANOVA to understand the variations of the demographic variables on customer engagement towards the services of Indian Railways on social media handles. Thus, the following hypotheses were formed, and one-way ANOVA was performed.

Table 5.2: Hypotheses and Conclusion

Sl. No.	Hypotheses	Significance Level	Accepted/ Rejected
1	**H2₀:** There is no difference in the population means of all age groups regarding customer engagement on social media handles of Indian Railways..	$p < 0.05$	Null Hypothesis Rejected
2	**H3₀:** There is no difference in the population means of all gender groups regarding customer engagement on social media handles of Indian Railways.	$p > 0.05$	Null Hypothesis Accepted
3	**H4₀:** There is no difference in the population means of all educational qualification groups	$p > 0.05$	Null Hypothesis Accepted

	regarding customer engagement on social media handles of Indian Railways.		
4	**H5₀:** There is no difference in the population means of all occupational groups regarding customer engagement on social media handles of Indian Railways.	$p > 0.05$	Null Hypothesis Accepted
5	**H6₀:** There is no difference in the population means of all Railway Zones regarding customer engagement on social media handles of Indian Railways.	$p > 0.05$	Null Hypothesis Accepted

The findings of the one-way ANOVA make it abundantly clear that, with the exception of "Age," the other demographic variables, including "Educational Qualification," "Gender," "Occupation," and "Railway Zone," do not have a significant difference in mean customer engagement on the social media handles of Indian Railways. This conclusion was drawn from the findings of the study. As a result, it was concluded that $H2_0$ was not a valid hypothesis, but accepted the hypotheses of $H3_0$, $H4_0$, $H5_0$, and $H6_0$.

Table 5.3: Hypotheses and Conclusion

Sl. No.	Hypotheses	Significance Level	Accepted/ Rejected
1	**H7₀:** There is no correlation between the factors of customer engagement for Eastern Railways	$p < 0.05$	Null Hypothesis Rejected
2	**H8₀:** There is no correlation between the factors of customer engagement for Northeast Frontier Railways	$p < 0.05$	Null Hypothesis Rejected
3	**H9₀:** There is no correlation between the factors of customer engagement for South Eastern Railways	$p < 0.05$	Null Hypothesis Rejected

Zone-wise measurements of the Pearson coefficient were taken. Five customer engagement parameters were examined linearly. For the three zones of Northeast Frontier Railways, South Eastern Railways and Eastern Railways, there is a significant positive relationship between identification and enthusiasm,

identification and attention, identification and absorption, identification and interaction, enthusiasm and attention, and identification and interaction. From the Pearson Correlation Matrix, it was evidences that for all the three zones considered in the study, that there was a positive correlation between the factors of customer engagement on social media handles of Indian Railways. Thus, the null hypotheses $H11_0$, $H12_0$, and $H13_0$ were rejected.

This suggested that there was a substantial positive or negative influence on the aspects of customer engagement whenever there was a change in one of the factors of customer engagement. As a result, none of the factors could function independently of the others without being influenced or impacted in some way by the other elements. For instance, if the amount of interaction grows, the identification, excitement, attention, and absorption level also increases or decreases. This can be said for the other elements as well, and it holds true regardless of whatever component is being considered. As a result, we conclude that the null hypotheses $H11_0$, $H12_0$, and $H13_0$ were not to be accepted. For the three zones considered for the study the correlation between the factor are present. Towards that end it can be said that for every mismanagement of customer services or customer grievances will simultaneously result is a negative customer engagement. Thus, any customer engagement strategy that Indian Railways implements through their social media handles must be done keeping in mind the national impact in the form of patriotism, a sense of national belongingness and a pride in availing the services of a largest government service provider also hailed as the backbone of the nation.

5.4. Key Recommendations

The present study is directed towards developing a framework for analyzing the effect of demographic variables on the identified factors (from the developed framework) of customer engagement towards the services of Indian Railways on social media handles.

- The first objective of the study was to identify a customer engagement framework for Indian Railways through bibliometric analysis. The key analysis under this brought about a sharp demarcation in the form of past foundation in related studies (co-citation analysis) and, present studies (bibliographic coupling and keyword co-occurrence). The themes seen in the past were included as conceptualization, operationalization, and modelling of customer engagement. It

also included studies focusing on online and technologically moderated customer engagement. Whereas the present studies included themes of customer engagement in the context of social media, complex modelling of customer engagement measurement, and theoretical and empirical validation of the same. Through keyword co-occurrence, further parameters and factors for the measurement of customer engagement were identified. Keywords co-occurrence brought out an important theme of customer engagement as a strategy to be used for winning customers on social media in electronic commerce. This analysis of the past and present research in the field of customer engagement by government services through social media helped identify the existing models used for scale development and framework for the present study. As such it helps demonstrate that customer engagement is a higher abstraction of five contributing factors. Although customer engagement could be understood using these five factors, there is a second-order construct where the five components symbolize the more abstract customer engagement construct. This second-order as depicted as antecedents is backed by keyword co-occurrence.

- The second objective was to determine the factors affecting customer engagement towards the services of Indian Railways on social media handles. In recent times backed by the Digital India initiative, government services have slowly realized customer engagement as a strategic imperative for building a meaningful customer relationship which can aid in better service delivery and innovation in service delivery. However, to date, a measurement of the same has not been available to empirically examine this assertation. Thus, this study provides a scale and factors that can be used to examine the effects of customer engagement towards the services of Indian Railways on their social media handles. The customer engagement scale offers a theoretical framework for creating future consumer engagement knowledge and experimentally researching customer engagement drivers. As argued by Van Doorn et al. (2010), attitudinal antecedents such as customer satisfaction, trust, brand attachment, brand commitment, and brand performance perceptions are crucial for customer engagement, this study's customer engagement scale enabled us to experimentally explore these links in the realm of government services and social media handles.

- The third objective was to study the influence of demographics on customer engagement towards the services of Indian Railways on social media handles. In this aspect, all the results obtained were not fully consistent with other studies conducted in other fields and areas as available in the existing literature. Only the demographic variable of "Age" had a significant relationship in influencing customer engagement towards the services of Indian Railways on social media handles. This is because the younger age groups were able to readily avail the services of Indian Railways on social media handles and voice themselves in a way to maintain two-way communication with the organization. Thus, it also implied that Educational Qualification, Gender, Occupation, and Railway Zone has no influence on customer engagement towards Indian Railways. As voiced by many of the respondents, when it comes to customer engagement towards Indian Railways, the non-response of the authorities or the duration of response pushes the customers towards negative engagement.

5.4.1. Strategies to improve social media engagement.

Indian Railways can further their customer engagement cause on social media platforms by improving their complaints system on social media platforms. The organization could incorporate aspects such as follows in improving their social media handles:

- Instagram: Photo-sharing network
- Google+: For comments and complaints
- Analytics Dashboard: To give details of the status of each complaint—real-time pending, resolved, or closed
- New Integrated App: For passengers to decide whether to tweet, SMS, or call
- Mobile App: Only for Senior Railway Officers to assess efficiency of each division based on issues, share of problems, and the duration to resolve those.
- Providing a consistent experience across all channels and interactions.
- Considering each touch point for a better experience.
- An integrated system that allows employees to have a thorough view of every customer transaction that can help them to answer the customer's queries better.
- Offering multimodal mobility services and intelligent transportation systems (ITS) that provide information to passengers throughout the journey.

The above mentioned steps if incorporated would be beneficial for engaging frequent travelers of Indian Railways. Indian Railways handles of Facebook and Twitter are currently combined. The prevalence and utilization of Indian Railways' own subscription platforms, such as YouTube and Instagram, are quite moderate. The traditional IVRS-based customer service system and the government-sponsored program would be integrated with these social networks by Indian Railways in addition to them. It's crucial to comprehend the systemic remedies that will be accomplished through these, technology considerations aside. It would be fascinating to learn what administrative and management advancements the integrated systems provide for Indian Railways. The overall operational and financial performance of the Indian Railways is predicted to improve as a result.

5.4.2. Best practices followed in other countries that can be used by Indian Railways for better customer engagement.

Few social media-based analytics of rail operators that are leaders in their respective countries were also referred like, Italy, France, Austria, Belgium, Netherlands, and Spain, with a specific attention to their operations in passenger transportation. Two most used Social Network websites of these organizations are Facebook and Twitter. Few others, namely, YouTube, Pinterest, and Instagram, are used by some of the operators. Emphasis must be French railway service provider, SNCF, which owns multiple accounts, depending on the type of service offered, on each Social Media platform. SNCF conducts extensive use of the social media for promoting its services, creating appealing marketing campaigns mostly based on videos. The strength of SNCF lies in its ability of creating multimedia content not focused exclusively on the French market but oriented towards other states. The organization operates services across all Europe through its high-speed trains (TGV).

Feedback in the form of chats, virtual walls, comments, and posts are used by the European rail operators to acquire feedback concerning the customers experience utilizing the services provided.

The European rail operators also include content on their social media handles that are generated with the aim of maintaining all the current and potential passengers updated about the change in the scheduling, time tables, and ticket sales.

Publication of content of interest for the commuters and citizen aimed at generating awareness of the rail operators and its activities. For example, maintenance activity is notified through Twitter by SNCF.

5.5. Implications

5.5.1. Managerial Implications

This research makes a theoretical contribution to the existing body of literature on customer engagement by enhancing our comprehension of the construct and dimensionality of that concept. This is especially true within the context of a constantly shifting digital environment that involves a great deal of dynamics.

To begin, the results of this study have been used to provide a fresh and comprehensive definition for the concept of consumer involvement on social media. This definition combines the words of Dessart et al. (2016), which state that customer engagement is "a cognitive, emotional, and behavioral commitment to an active engagement with the brand," with the phrases that are most often used by practitioners, such as commitment or consumer/brand engagements (also used in the definition of Hollebeek et al. 2014). Therefore, customer engagement on social media is defined as "a state of cognitive, affective, and behavioral commitment to an active relationship with a brand, demonstrated by consumer/brand interactions on social media." In other words, customer engagement is "a state of cognitive, affective, and behavioral commitment to an active relationship with a brand."

Second, the research investigates the extent to which customers are engaged in social media by relying on inferential data derived from indicators that are used by various fields or industries or sectors. This method is an alternative to the research that was done in the past, which assessed customer engagement based on declarative data from customers and using known psychometric scales. In conclusion, the findings of this study contribute significantly to the academic literature on organization performance measurements. These metrics have traditionally been plagued by a lack of clarity, parsimony, and adaptability, particularly in technology-driven fields such as social media.

This study offers a wealth of new perspectives for managers to consider and put into practice because of its findings. To begin, it generates a picture of consumer

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engagement on social media that is both current and comprehensive. It illustrates how complicated the subject matter is and offers guidance by pointing out the variables that are most important. Second, this study provides a new and updated perspective on the measurement of customer engagement in relation to government services and agencies, as well as key related metrics in social media networks that have the largest audience and encompass current practices in a variety of business sectors (FMCG products, luxury, telecommunications, retail, entertainment, services, health care, chemicals, etc.). In addition, when it comes to customer engagement, social media platforms like as Facebook and Instagram rely less on cognitive aspects and more on emotive and behavioral ones. Third, the study offers a thorough picture of the performance measures that are now being utilized by multinational corporations and governments throughout the globe to track their social media performance on their respective social media accounts. This might serve as guidance for managers of government services and agencies to further enhance the performance assessment of their social media accounts. Fourth, the research highlights the significance of a qualitative approach to customer engagement as a means of improving the relevance of observed interactions on social media and better capturing the unstructured data. In conclusion, the research highlights significant areas of concern by investigating existing monitoring procedures that capture the customer's journey to effective customer engagement. This provides light on the prospective future approaches, for the purpose of better understanding the aspects of customer engagement on social media.

5.5.2. Societal Implications

Many organizations and individuals have an interest in and/or stake in any given research. The present study is an effort to study customer engagement initiatives through digital marketing by Indian Railways, under which it aims in developing a framework for analyzing the effect of demographic variables on the identified factors (from the developed framework) of customer engagement towards the services of Indian Railways on social media handles.

As a public service provider, Indian Railways' objective for customer engagement is to enhance accountability. As such the responses of the customers here are self-evident for customer engagement sentiment. Yet the choice of action of Indian Railways to engage with their customers through their management process, which has been

following a more intimate manner, directs the more efficient use of social media platforms for customer engagement outreach. This is also evident from the decision of Indian Railways decision of using social media platforms as the new venue for their decision-making process for pushing their side of communication in the two-way process of customer engagement.

Even with such changes for effective customer engagement, for service reforms and information dissemination, it must be noted that it would not be possible without the change in leadership and incorporation of a top-down approach in social media adoption for service improvement. There was still work to be done once the social media-based services was formally established. They needed to be fine-tuned to maximize the effectiveness of the new personnel, equipment, and procedures. Due to the system's redundancy and overlap, there were also many service gaps that needed to be filled by Indian Railways that were not implemented or are in discussion stage within the organisation. Staff and their respective responsibilities were subsequently restructured, simplified, integrated, and prioritized. Due to the dynamic nature of the Indian Railways landscape, we should expect to see more complex breakthroughs like this in the future.

The main region of the present research is centered towards the northeast states of India and West Bengal. In comparison, there is a clear demarcation in the Indian Railways Zones and the problems faced by them. As such while the state of West Bengal itself is divided into three zones in lieu of the burgeoning passenger traffic, the same cannot be said for the northeast states combined. Here, the northeast states comprise Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura. Over the years Northeast Frontier Railways have brought in more and more infrastructural modifications for these states, yet there still lingers the issue of connecting the rural with the urban or semi-urban regions. This can be seen from the problem of accessibility of regular stoppage passenger trains along their routes, which are sadly few and lengthily distributed with two or more states sharing a major station or junction. With most of the population of these states residing in rural areas, access to such services becomes a challenge.

When considering the demographic influence on customer engagement, the age of the respondents has been shown to have a significant influence. Certain aspects such as the safety of travel, acceptability of new technology, purchase capability of the respondents

and the ability of bulk luggage transport have come up as reasons for this age effect. This simply implies that young adults and adults have been vocal in their communication with the Indian Railways and were equally aware of the online services of Indian Railways and knew of their social media handles.

5.6. Conclusion

This study makes a significant contribution to the existing body of research on customer engagement by delivering a trustworthy and credible customer engagement measure. With this measure, researchers were able to gain additional insights into the psychological and behavioural connections that customers have with an organisation that go beyond the service consumption experience. The customer engagement methods of Indian Railways through their various social media handles are still in the early stages of their development. In spite of the lightning-fast expansion of the internet and technologies related to it in India, there was only a little amount of customer engagement seen. When contrasted with other parts of the world, India stands out due to the unique social, psychographic, cultural, and normative values and characteristics that it possesses. Keeping this in mind, it was necessary to devise and implement a different methodology for the purpose of measuring consumer engagement in relation to the services provided by Indian Railways on their various social media platforms. Even for an organisation that is the backbone of the nation's economy, it still becomes important for the government to have a better read of the Indian mind and of the prevalent socio-cultural values and customers' values on the social media domain in order to curate better services and customer engagement strategies. This is the case even though the government is the organisation that is the backbone of the nation's economy. After it has been completed in the social domain described above, it may become an intrinsic part of the interactions that customers have on social media or it may be utilised by government authorities on the same platform for the same reason. This aspect is emphasised throughout the customer engagement paradigm that has been proposed.

5.7. Scope for Future Research

Customer engagement management is essential in every sector. It is the only option for businesses to thrive in this age of fierce competition. A customised omnichannel strategy that meets the demands of the client while also connecting with them is required. Well-planned customer engagement in the transportation business eliminates

transportation industry difficulties. It promotes retention of customers while also increasing the bank of potential consumers through the most effective marketing method: word of mouth. Retaining a previous customer is usually less expensive than finding a new one, and it accomplishes the job twice as well.

Customers anticipate near-instant fulfilment for all of their needs. Artificial Intelligence and other pertinent technologies have provided a platform for Indian Railways' rivals, namely air travel, to demonstrate what they can do for their clients, and the pressure to deliver is greater than ever. It takes time and effort to change a traditional system, but the transportation industry has introduced some common digital methods of reporting in the industry to better suit the customer, such as - online ticketing system, Operator Walk Around Checklist, Equipment Condition Report, COVID-19 Daily Declaration, Fleet Repair Request, Vehicle Accident Report, Pre/Post-Trip Inspections, and Vehicle Condition Report.

Each of these additions comes with its own set of challenges, such as whether or not the staff will embrace the changes with open arms, difficulties in training staff and overseeing management, upgrading all communication to the digital front, and more, but what must be considered is long-term customer satisfaction and savings. It is a significant advantage to ensure that the transportation sector is employing new technology. Customers should be able to obtain what they deserve with the touch of a button. Being technologically capable also implies being current and quick.

Customer engagement strategies, analytics, surveys, and measurements all aim to identify the best practices that may be applied to effect such improvements. Bringing the human-digital balance into play is another difficulty. Indian Railways should be digitally driven, but they should also cater to clients who want human-oriented services/solutions or be able to give them when necessary. The ability to personalize or humanize a company's offerings is always beneficial to sales and customer engagement.

What Indian Railways genuinely need is an understanding of what inspires its customers, the ability to share real-life experiences with/for them, the ability to create trust with them, and the ability to be extremely open/transparent with them. To keep up with digital developments, the transportation sector has transitioned from paper-based tickets used for decades to totally on-the-phone ticketing systems. Every transportation

firm that serves its consumers now prioritizes convenience, cost-effectiveness, comfort, and safety. They are always working on personalisation, which may be accomplished with appropriate data collecting. For the same reason, Indian Railways goes above and above by displaying their regular customers the path they may take or tempting incentives that might keep them, therefore increasing brand loyalty. In this aspect Indian Railways as an organisation of the transportation section of India, it aids in the advancement of the sector and helps in providing better services to their customers. Such a research into the customer engagement efforts done by Indian Railways, benefits the customers in having a human touch, curated itinerary and, services. It also amounts to the external accountability of the organisation towards their customers. It helps to quantify the "power of trust" put on them by the customers of Indian Railways. Acting upon tweets and other forms of communication done through the social media platforms aids in better crisis management by Indian Railways. As such, leads to better grievance handling, transparency, real-time resolution of issues and a testimonial in good governance.

Every study has few limitations, but these may be ironed out by conducting further research in the future. The findings of this study, for instance, cannot be extrapolated beyond the scope of the sample because the research was conducted inside a single country, with just three zones limited to a certain geographical region, and with the sample being random. The customer engagement scale and model should be validated in subsequent research utilising random samples from around the country, each of which represents a different Indian Railway Zone. A second, related argument is that India, in and of itself, is very huge and diverse, both in terms of accessibility and, more generally, in terms of the distinctions that exist across the states and regions. It might be very significant to analyse whether the outcomes that were reported in this research differ depending on whether or not they were compared to other states or regions. However, the sample size is not large enough for this fine-grained intra-national examination, as was highlighted in the discussion of the study results. Although the sample is broadly representative of India's population in a broad sense, the population of India as a whole is not. Finally, we researched the social media accounts of Indian Railways that had the most followers on the most prominent platforms. In the course of future study, it would be beneficial to evaluate the scale and model of not only the other Indian Railway zones but also the country as a whole.

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APPENDIX

QUESTIONNAIRE FOR THE RESPONDENTS

I. Demographic profile of the respondent

1. Age

   18 - 28 years ☐

   28 - 38 years ☐

   38 - 48 years ☐

   48 - 58 years ☐

   58 years and above ☐

2. Gender

   Male ☐

   Female ☐

3. Educational Qualification

   Matriculation ☐

   Higher Secondary ☐

   Graduate ☐

   Post Graduate/Masters ☐

   M.Phil./PhD ☐

   Others ☐

4. Occupation

   Student ☐

   Housewife ☐

   Government Service ☐

   Private Service ☐

   Retired Personnel ☐

   Self-employed ☐

5. State

   West Bengal ☐

   Sikkim ☐

   Meghalaya ☐

   Assam ☐

   Tripura ☐

	Mizoram	☐
	Nagaland	☐
	Arunachal Pradesh	☐
	Manipur	☐

6.   Did you purchase a railway ticket for any destination?

Yes ☐
No ☐

7.   Where did you purchase your ticket from?

Ticket counter ☐
Travel Agent ☐
Travel website ☐
IRCTC ☐
Others ☐

8.   Is this your first time availing Indian Railways services?

Yes ☐
No ☐

9.   Exposure (To various forms of social media platforms)
[Please tick any one or as many options which you believe to be true for you]

Facebook ☐
Twitter ☐
Instagram ☐
Snapchat ☐
Google AdWords ☐
Others ☐

10.   Awareness (About the organisation) [Please tick any one or as many options which you believe to be true for you]

Can you name the social media platform you see the organisation in? ☐

Can you name the celebrity of the organisation as seen on their posts of its social media handles? ☐

Can you recall the posts of the organisation on any of their social media handles? ☐

Can you recall the social cause of the posts of the organisation on their social media handles? [ ]

Can you recall the social group depicted in the background of the organisation's' posts on their social media handles? [ ]

II. Now check the extent to which you agree to which you agree with the following items/statements and rate the same based on 5-point Likert scale i.e., [1] Strongly Agree [2] Agree [3] neither Agree nor Disagree [4] Disagree [5] Strongly Disagree

STATEMENTS	SCALE				
1. IDENTIFICATION					
I feel a personal connection to the organisation.	[1]	[2]	[3]	[4]	[5]
I can identify with the organisations' goals.	[1]	[2]	[3]	[4]	[5]
When someone criticises this organisation on social media platforms, it feels like a personal insult.	[1]	[2]	[3]	[4]	[5]
I believe the organisation reflects the customers' wants and needs.	[1]	[2]	[3]	[4]	[5]
I feel the organisations' successes are the customers' successes.	[1]	[2]	[3]	[4]	[5]
When someone praises this organisation on social media handles, it feels like a personal compliment.	[1]	[2]	[3]	[4]	[5]
I believe the organisations' services benefit the customers' in the long run.	[1]	[2]	[3]	[4]	[5]
2. ENTHUSIASM					
I keenly notice information related to the organisation.	[1]	[2]	[3]	[4]	[5]
I am passionate about the organisations' social media handles.	[1]	[2]	[3]	[4]	[5]

I am heavily into the organisation's social media handles	[1]	[2]	[3]	[4]	[5]
I enjoy spending time on the organisations' social media handles.	[1]	[2]	[3]	[4]	[5]
3. ATTENTION					
I feel the organisation serves every customers need.	[1]	[2]	[3]	[4]	[5]
I like to learn more about this organisations' online community.	[1]	[2]	[3]	[4]	[5]
I pay a lot of attention to anything about the organisation.	[1]	[2]	[3]	[4]	[5]
I feel the organisation has a strong understanding for customer's requirement.	[1]	[2]	[3]	[4]	[5]
I think that the organisation has a genuine concern for its customers.	[1]	[2]	[3]	[4]	[5]
4. ABSORPTION					
I feel emotionally connected to the organisation.	[1]	[2]	[3]	[4]	[5]
I feel the organisation have a unique place in the mind of the customers.	[1]	[2]	[3]	[4]	[5]
I feel proud to recommend the services of the organisation.	[1]	[2]	[3]	[4]	[5]
I feel the organization shares the goals of its customers.	[1]	[2]	[3]	[4]	[5]
I have a sense of belongingness towards the organisation.	[1]	[2]	[3]	[4]	[5]
I feel convinced by the organisations' endorsement on social media handles.	[1]	[2]	[3]	[4]	[5]
5. INTERACTION					
The organisation provides platform for customer interaction.	[1]	[2]	[3]	[4]	[5]

I post suggestions in the organisation's social media handles for service improvement.	[1]	[2]	[3]	[4]	[5]
I feel the organisation respond to customers observations of the organisation by incorporating observation into service improvement.	[1]	[2]	[3]	[4]	[5]
I often visit the organisation's social media handles and give feedback about their services.	[1]	[2]	[3]	[4]	[5]
I recommend the organisation's services to friends & other groups of people on various social media handles.	[1]	[2]	[3]	[4]	[5]
The organisation explicitly appreciate/reward views of customers regarding the services of the organisation on social media.	[1]	[2]	[3]	[4]	[5]]
The organisation formulates ideas through discussion and collaboration about the organisation with the customers on social media handles.	[1]	[2]	[3]	[4]	[5]

CONFERENCES, WORKSHOPS AND, PUBLISHED PAPERS

I. Conferences and Workshop

Sr. No.	Paper Presented /Attended at the Conference	Conference & Workshops	Year
1.	Evolving Dynamics of Social Media Marketing and Public Services	"Rethinking Business: Designing Strategies in Age of Disruptions", Mittal School of Business, Lovely Professional University	2020
2.	Social Media Platforms and Customer Engagement	"Innovation And Emerging Trends In Engineering, Science and Management", Sanjay Bhokare Group Of Institutes, Miraj	2022
3.	Citizen Engagement through social media platforms of Facebook and Twitter :A Bibliometric Analysis	"Fostering Resilient Business Ecosystems and Economic Growth: Towards the Next Normal", Dr. D. Y. Patil B-School, Pune	2022
4.	Attended the conference	"Industry 5.0: Human Touch, Innovation, and Efficiency", Mittal School of Business, Lovely Professional University	2022
5.	Attended the workshop	"Nuances in Writing Research Article", Dept. of Commerce, Shri Krishnaswamy College for Women	2022

II. Published Papers

1. Publication of article titled "Social Media Marketing of Government Services: A Bibliometric Analysis" in Rabinbra Bharati Journal of Philosophy a UGC CARE Group I Journal.

2. Publication of article titled "Factors of Customer Engagement On India Railways' Facebook And Twitter Social Media Platforms" In NeuroQuantology, a SCOPUS indexed journal.