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Impact of Digital Banking and Artificial Intelligence on Retail Customer Engagement - A Case Study on HDFC Bank

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ABSTRACT: Customer engagement has been an inevitable factor in banking industry as the previous researches show that fully engaged customers add 36% additional revenue compared to unengaged revenue. Digital technology has significantly transformed the banking industry hence the retention of its customers through digital banking has been imperative too. This paper is a case study on HDFC Bank in India, using primary and secondary data to understand its digital banking initiatives to provide a true customer experience thereby retaining its customers. The study was carried out mainly through the primary data published by the bank in its various platforms. The key performance indicators show that the bank has achieved an impressive growth in all facets of the banking operations through its digital banking initiatives including Artificial Intelligence chatbotEVA. It is found that 95% of the transactions are being carried out through its digital channels. The significant growth in its financial performance, the number of customers and the Net Promoter Score inferences that the bank has achieved a significant level of customer engagement through its various digital banking and Artificial Intelligence initiatives

KEYWORDS: HDFC Bank, Customer engagement , Customer experience, Digital Banking, Artificial Intelligence

I. INTRODUCTION

Customer engagement (CE) is the behavioral manifestation of a customer's cognitive , emotional and behavioral engagement [1] thereby developing an emotional attachment to a brand or a product. Banking industry is going through a phenomenal transformation owing to the revolutionary development in digital technology. Customers are now more powerful than ever before, as they are aware of many options for their products or services they needed [2]. Though the CE started receiving significant scholarly attention during the last decade, there has not been a consensus on the metric to precisely measure the customer engagement as each researcher has evolved with his/her own conceptual frame work for CE.

Retention of customers has been always a top priority of any industry and therefore, engaging the customer meaningfully is now impetus and imperative. With the advent of internet and digital technology, global market space has been turned to a place with no boundaries [3]. In addition, the new generation "Millennials"[4] who account for one third of world population is an essential lot to be retained as they are much informed and aware of their choices due to their high level affinity toward the social media and other digital platforms. Past researches show that 5% of retention can improve the profitability from 50 - 80% [5] .

This case study intends to find out the various digital technology initiatives including Artificial Intelligence (AI) introduced by HDFC Bank ,one of the largest commercial banks in India. Researcher also highlighted the high level of customer engagement of customers through the Net Promoter Score (NPS) which comprises two underlying factors of CE, namely customer satisfaction and customer loyalty [6]. The researcher also establishes that the consistent growth in financial performance and the customer base, as another convincing indication of high level of positive customer loyalty and satisfaction of its customers.



Indian Banking Industry

Past decade has witnessed a radical change in banking industry from its traditional physical banking to net banking and now mobile/watch banking and more. Even opening an account is possible with a few private banks in India whereby the KYC verification is done through video mode. The high speed internet enabled the mobile banking much more easier. Though the adoption of AI in Indian banks is its early stage, many private and public sector banks have started using it in view of enhancing the customer experience. It is imperative that sustenance of the Indian banks is too bleak without technological up-gradation and sooner or later, all banks need to introduce AI. AI ensure personalized services to customer which would increase the customer satisfaction hence the increased retention. The Covid pandemic triggered another level of online banking due to the restrictions in the physical proximity which has enhanced the need for AI. Another focus of the banks are on the 'Generation Y' or 'Millennials'. The data shows the millennial population is 426 Million [7] which accounts for 34% of the total population of India. This is very significant cohort, for not only banking but for all other businesses as well. The typical characteristic of Millennials is that they need everything "now" [8] whether it is a loan or to send money to someone or pay a bill. Any delay in providing service proves may land up in the defection of the customer. This has brought in a significant change on the traditional concept of banking wherein the importance of digital technology and AI play a big role.

Application of Artificial Intelligence (AI) in Indian banking

The Mc Kinsey global survey [10] shows that the most common use of AI is the robotic process (36%), Virtual Assistant (32%) and 25% for risk management and underwriter support. AI has several applications in banking. It can significantly reduce the cost by way of avoiding errors in mandatory compliances of central bank for which the banks pay out a huge amount of money as fine for violating the regulatory compliances [9]. AI can minimize such violations as it makes use of the real time data thereby human errors are eliminated

It can also furnish the information about various financial products offered by the banks and execution of preapproved loans round the clock through the chatbot application. This helps the bank to improve its operating efficiency apart from providing an enhanced customer experience and satisfaction which are the foundation of customer engagement.

Objectives of the study

1. To Study the various Customer Engagement Strategic measures initiatives by HDFC Bank and the outcomes
2. To highlight the artificial intelligence application adopted by the bank
3. To reveal the performance of the bank due to omnichannel marketing strategies and the possible connection with positive customer engagement

Conceptual framework of Retail customer engagement in banking

A conceptual frame work is created as in Fig. 1 indicating the various stimuli of bank that generates or degenerate positive or negative customer engagement behavior.

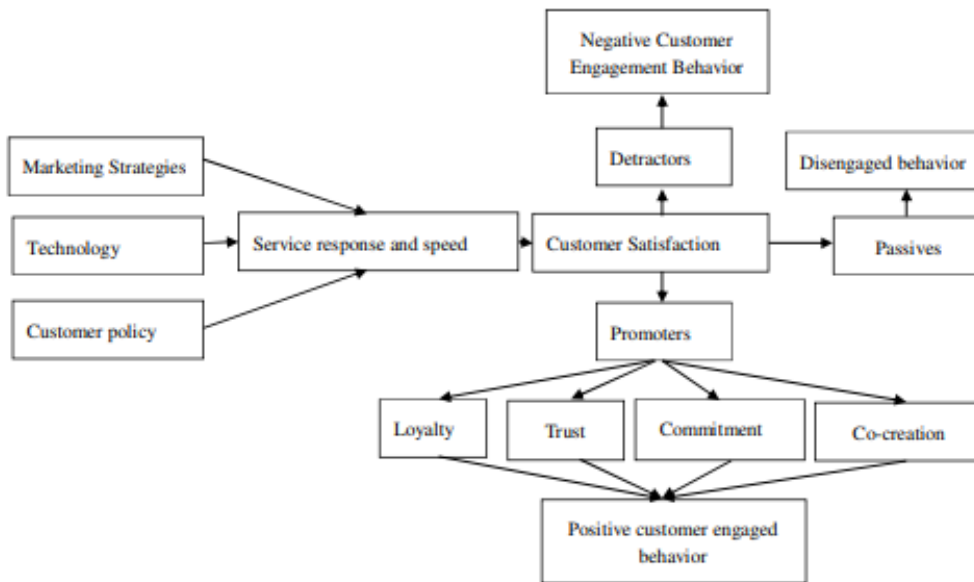


Fig. 1 Conceptual framework of customer engagement in retail banking

II. RELATED WORK

Artificial Intelligence and Banking Industry

Artificial Intelligence is the use of technology that enables the processing of a large amount of data in real time basis [11]. It can replicate many human intelligence processes diligently. Banking industry is in its phenomenal transformation process to provide the best service quality. The digital technology and the aggregate savings using AI is estimated to be 442Bn globally by 2023 [12]. AI can in many ways contribute banking industry by way of precise compliances, substitute traditional customer care executive to furnish seamless information, apart from carrying out many banking transactions in a much efficient and faster ways.

Customer Engagement in Banking

Innumerable studies have been conducted in banking industry and the contribution of digital marketing and artificial intelligence which received a prominent scholarly attention. The key factor that influences the service exchange is the customer Experience [13] that leads to the customer satisfaction. Customer satisfaction is the main construct that leads to the customer engagement [14] through an emotional brand attachment, loyalty and trust. Research amongst the Malaysian retail banking customers show that they are not concerned about the market orientation or the product or service but proved that customer satisfaction has a positive correlation to their engagement with the bank [15]. Survey shows that fully engaged customer accounts for 37% more revenue to their primary bank compared to less or not engaged customer[16] and the deposits and availing loans are also much higher compared to the less engaged customers. This is a very impressive figure and depicts the need for retaining the customers, meaningfully engage them and turn them to the advocates. However, there needs to establish a strict evaluation metric between the customer experience and digital banking [17].



III. RESEARCH METHODOLOGY

The is an exploratory study based on the Primary Data collected from the bank's website and their annual analytical reports. Secondary data was collected from other published journals and articles, survey reports by leading consulting and survey companies such as McKinsey , PwC, Statista, Gallup and various other internet sources.

IV. CASE ANALYSIS AND FINDINGS

HDFC Bank

HDFC Bank was established in 1994 as a private sector bank and now is the largest bank in terms of market capitalization[18]. As in 2021, the bank has 5608 branches and 16,078 ATMs spread across 2902 cities and towns [19]. The growth history of bank is very impressive which was possible by a customer centric and future oriented approach. Since beginning, bank has given importance to the digital technology and has been a pioneer in adopting AI.

OmnichannelMarketing Initiatives taken by the bank to enhance the customer experience of retail customers

Omnichannel marketing is the concept of providing seamless services from one touch point to all other digital channels[20]. This enables the customer to pass from one channel to another without quitting one application. The research shows that there is a significant positive association between omnichannel marketing and the customer satisfaction [21]. Studies show that omnichannel marketing has increased the customer engagement rate to 18% compared to that of single channel marketing. HDFC bank's omnichannel operations are given in the Fig 2

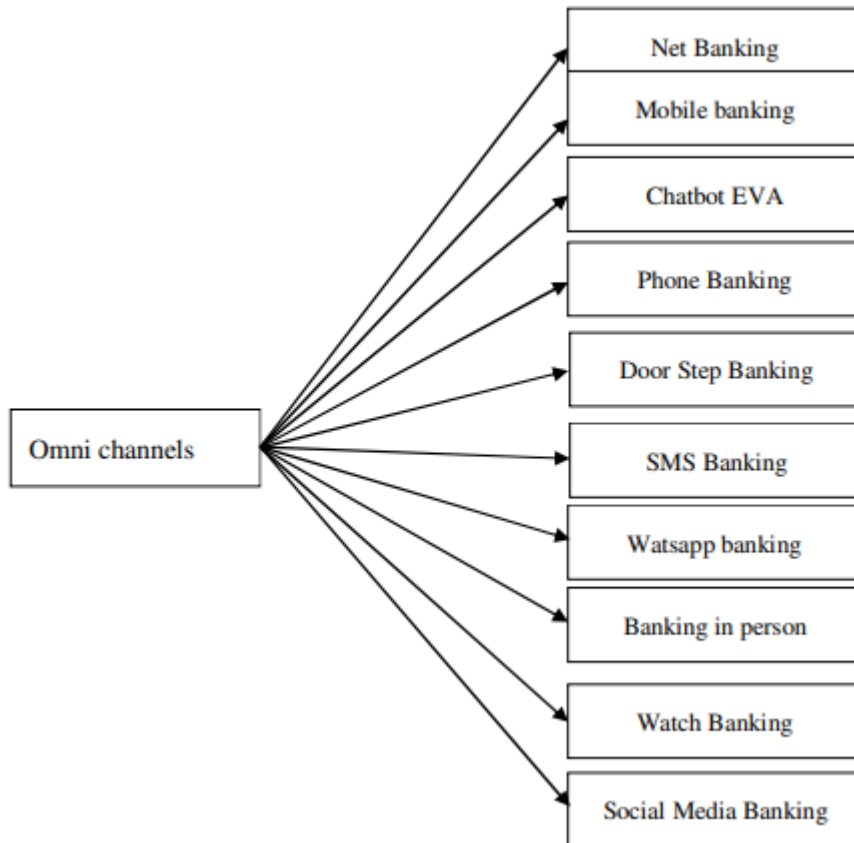


Fig. 2 Omnichannels by HDFC bank

Bank has carefully chosen a marketing tag “Aapkamuthi me” (Bank within your fist) implies that all the banking needs can be addressed just through your fingertips. To enhance the customer satisfaction, which is the stepping stone of customer engagement, the following banking channels were introduced by the bank intending to provide the best customer experience

Online Internet banking

Online internet banking facilitates the customer to carry out more than 200 transaction such as open an account, manage the account, pay bills, create deposits and accord pre-approvals of retail banking loans, round the year without any hassles. Most of the transactions are possible without physically visiting the branch. More than 200 types of transactions can be done through. “Smartbuy” app facilitates the customer to purchase goods online and make payment to travel agents for any tours

Mobile banking

Customers can do more than 100 types through this mobile app. Bank claims high level of privacy and security as the prime feature of the app. Through another app “Payzapp”, customer can link the credit card and use it for paying the bills, shopping and other banking services quickly

Phone banking

Over phone banking, more than 60 transactions can be carried out such as transferring money, investments and other account services. Customer just needs to make a call or send an SMS through the app or browser. Transaction can be done through IVR(Interactive Voice Response)



SMS Banking

SMS banking enables the customer to generate passwords, account balances and placing request without login

Watsapp banking

Through a dedicated whatsapp number, customer or non- customer can chat with customer care executive for any new product information or carry out banking transactions after authorization. The facility is available round the clock

Doorstep banking

Doorstep banking enables the customer to obtain many services such as delivery of the cash, pick up the cheques, opening the account and many other banking services. The security is ensured by the bank by engaging the specialized agents and courier services. All such transactions are insured to enhance the customer trust

Banking in Person

Regardless of the branch where the account is maintained, customer can get into any branch or ATM and do the banking transaction through core banking including withdrawal or deposit of cash through core banking technology

Watch Banking

Watch banking was introduced by the bank first time in India. Customer can do many transactions through an Apple watch

Social Media Banking

Customer can carry out many transactions through social media such as recharging the mobile, payment of bills, book an Uber or Ola car, book a hotel or a movie ticket. An exclusive app “ Onchat “ facilitates the customer to carry out these facilities round the clock

Artificial Intelligence adopted by HDFC Bank

HDFC is the first Indian bank to adopt AI for in view of providing an exclusive customer experience. Adoption of AI is the need of the hour for the Indian banks to ensure a seamless customer experience round the clock. The following are the AI initiatives taken by the bank

Interactive Robotic Application (IRA)

Bank has introduced Interactive Robotic Application(IRA) in one of its branches. IRA is a humanoid placed in the branch which furnishes information such as Bank related queries, Frequently Asked Questions (FAQ) etc. through voice and touch screen interactive modes. This robot is equipped with a speech recognition software module which can recognize what customer speaks. It also has an ultrasonic sensor to move around the bank to guide the customer.

Chatbot, EVA(Electronic Virtual Assistant)

HDFC Bank was the first private bank to introduce Artificial Intelligence through aChatbot , EVA. EVA is a chatbot, introduced to interact with customers in order to provide service round the clock. EVA provides extensive information, directs and executes various customer requirements such as account opening, deposits, loans and so on. Usage of Natural Language Processing (NLP) coupled with Artificial Intelligence, bank is able to provide a human like service to the customers. Bank introduced a 10sec loan to its pre approved customers which can be carried out through EVA

Since inception of EVA in March 2020, it has addressed 2.7Million customer queries in just 6 months that comprises 530,000 unique and 1.2Million conversations. Basically EVA integrates the knowledge from different sources and convert in to simple information in less than 0.4sec through a simple interactive mode. Currently conversation is possible in English and Hindi. EVA thus facilitates the customers to obtain information about bank’s products and services which otherwise should have been obtained by browsing the website. EVA also learns through customer interactions as to what the customer needs which turned out to be the ultimate customer experience.



The major information are provided in the following areas

Insta account Opening	Furnishes all the details of Individual account, HUF account, Non-resident accounts, Changing the KYC, joint account and the eligibility. It also furnishes benefits of Insta account and the tracking of application
Deposits	Furnishes and enables all kind of fixed deposits, recurring deposits, dream deposits, 5year tax saving deposits etc. offered by the bank and the interest rates of advances and deposits. Also enables creation of fixed deposits online. Apart from text description , video clippings are also embedded in EVA
Offers	Furnishes information about net banking offers, UPI offers, smart buy offers for flight tickets /hotel booking
Watsapp banking	Provides all Information about whatsapp banking and registration
Credit Card / Debit Card Information	<ul style="list-style-type: none"> • Details of Credit card statement (Instant outstanding balance, Minimum amount to be paid, previous statement due, payment due date , Autopay option) • Reward points , both accumulated and Redeemable • Credit Card Limits (Total Limits and Available limit) • Spending limit (for International Spending, Online Spending , Daily limits. Both enabling and Disabling. Blocking and unblocking the card temporarily) • Credit card loans details • Block the card instantly to avoid threat of fraud • Fees and Charges
Pre Approved Loan	EVA estimates the eligibility for Car Loan , Two Wheeler Loan, Loan on credit and debit cards, gold loan, consumer durable loan, Forex card, loan against securities and enables preapproval
Other Products and Services	EVA furnishes all the details of bank’s products and services round the clock similar to a customer care executive in a call center of the bank
Utility payment options	Enables the payment / recharge of electricity, land/mobile phone bills, DTH bills, Gas bill, water bills
Other Services	Information about ‘HealthFirst ‘ scheme, Reset IPIN , Report failed transaction

Source :www.hdfcbank.com

Other products and services

In view of providing seamless andOmnichannel customer experience, various products and digital services were extended by the bank as described below

Products suiting to the “Millennials”

Millennials (Generation Y) are those who were born between 1981-2000. They account for one third of the population in India (apprx. 34%). They are more educated, informed and digitally connected [22]. Targeting this significant cohort, bank has introduced variety of products such as Millennia Debit card, Millennia Credit card, Millennia Prepaid card, Easy EMI card for purchasing consumer durables



Video KYC

Bank commenced Video KYC with the help of an in-house studio that enables the customers to open accounts without physically going to the bank

Payment through Application Programming Interface (API)

This facilitates the customer to make payment to third parties through banks apps other than bank’s payment platforms. HDFC bank has tied up with many such API platforms to enable the customer to make payments.

My Account My Choice

This enables the customers to choose their own account number of his/her choice

Customer Experience (CX) Transformation Programme

Bank conducted a survey in 30 cities with more than 15,000 customers to obtain Net Promoter Scores (NPS) developed by Frederick Reichheld [23]. This score was further utilized to benchmark the customer satisfaction and implemented closed loop feed back system with a branding ‘Infinite Smiles’ to establish the customer behavioural actions.

Performance of HDFC Bank

From the audited reports of HDFC bank shows that there has been a consistent growth in fiancé performance and other growth parameters. The growth over previous year for three years are shown in Table 1 and other growth parameters are shown in Table 2

Table 1 Financial Performance

Financial Performance			
Performance Parameter	Growth Over 2018-19	Growth over 2017-18	Growth Over 2016-17
Net Profit	24.60%	20.50%	20.10
Deposit	24.30%	17%	22.5%
Advances	21.20%	24.50%	18.3%

Table 2 Growth indicators

Other Performance Indicators			
Performance Parameter	2019-20	2018-19	2017-18
Gross NPA (%)	1.26	1.36	1.30
No. of Branch Outlets (Nos)	5416	5103	4787
ATM (Nos)	14901	13489	12773
Digital Transactions (%)	95.10	91.70	85.10
Customers (Cr)	5.6	4.9	4.3

Source Bank’s Analytical Reports



Net Promoter Score

According to Reichheld, Net Promoter Score (NPS) is the combined score of two components, Customer Satisfaction and Customer loyalty which are two important constructs of customer engagement and is the single metric that evaluates the level of customer engagement. The NPS survey conducted in 2019 reveals that HDFC has a score of 67 which is second highest among all the Indian banks with a meager difference with Kotak Mahindra bank which scored 68 [24].

V. CONCLUSIONS

The overall financial year on year growth of HDFC bank is found to be 16% which is an impressive figure compared to the private and public sector banks in India. The profitability has been improved consistently over years and is 24.6% increase in 2019-20 over the previous year. The growth of the customers in number has increased from 4.9 crores in 2018-19 to 5.6 crores in 2019-20 which is 14.3% increase. One of the important KPIs of bank, the gross NPA was found to be 1.26% lower than previous year (1.36%) which is much lower than other banks especially public sector banks which is an improvement in quality of customers in addition to the enhanced internal efficiency of the bank. The customer engagement metric Net Promoter Score (NPS) stood with 67, second highest of all banks in India which indicated the higher level of customer satisfaction and loyalty of its customers. Bank's 95.1% transactions are now done through digital channels which is an indication of high level of digital banking services availed by its customers. All these figures proved that omnichannel digital marketing and AI have paid off its due share to the bank in providing a seamless customer experience. Consistent performance indicators along with the high NPS score correlate that the bank has succeeded in its objectives in retaining the customers with meaningful engagement.

Limitation of the Study

The researcher has correlated the level of Customer Engagement of the bank through the various indicators such as Financial performance, growth in number of branches and customers, Net Promoter Score and also omnichannel marketing through digital technology and Artificial Intelligence. Previous research findings were used as the support for this inference. Whereas, no empirical study was conducted by the researcher to scientifically establish this fact. This may bring in errors in the inference. Hence there is a future scope for further empirical research to scientifically establish the correlation with HDFC bank and other banks.

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