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Impact of technological innovations on customer experience, profitability and financial soundness with reference to Insurance Company

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Abstract
With rise of advance technologies in every industry, the insurance companies adapted new technologies referred as Insurtech to smoothen their services in every aspect from customer point of view and from employees' point of view. This paper aims in discussing the technology used by insurance Companies specifically Bajaj Allianz General Insurance Company Limited and the various initiatives the company has taken in the form of digital applications for the benefit of customers, employees, management and farmers and how it has impacted the growth of the company. The paper also studies the impact of technological innovations on customer experience and profitability of the company. An attempt is made to study the financial soundness of the company with the help of CARAMELS approach. The study concludes that technological innovations have positive impact on customer experience, profitability and financial soundness of the company.

Keywords:
Disruption, Fintech, Insurtech, Digital, Asset Management, Financial Soundness, Technological Innovations, Customer Experience

1. Introduction
Financial Technology popularly known as Fintech is a technical and of course a trending term in today's fast driven technological world encompassing new financial innovation in terms of products services, business models, projects, applications. There is a transformation in the insurance industry. The rise of digitalization, ever increasing expectations of consumers, demographic changes, the demand for adopting technology and keeping pace with analytics has made the industry embrace digital innovation and disruption along with focusing on continuous innovative risk prevention. In comparison to other industries, the insurance industry although was slower in its action of facing disruption but in order to survive in this competitive world, most of the companies accepted the challenge for innovative digital transformation. Throughout the journey of transformation, the technology led enablers and disrupters better named as innovators and new market entrants who introduced financial technology in insurance industry at a much faster pace in the form of insurtech thereby challenging the traditional insurers. Before the pandemic, many incumbents were hesitant in adopting the digital transformation, COVID-19 pushed many traditional players in accelerating the technology and tools required for digitizing the insurance industry.

The industries are focussing to shift their approach towards customer-oriented strategies from traditional product-oriented way of thinking. Among all industries, Insurance industry is also the one which has taken a better approach towards customer driven strategies.

The insurance industry in the last two decades may be divided into three phases

1. The period from 2000-2008- The insurance industry took baby steps working on experimenting new projects and policies, expanding and grabbing new opportunities while learning and facing challenges.
2. The period from 2008-2014- This phase known as global financial meltdown, the insurance industry at this point faced uncertainty, a lot of scrutiny for regulatory compliance, indecision which led the companies revamp their long-term strategies and expansion.
3. The period from 2014 onwards-This phase represented the period of stability in regulations and insurance reforms, increase in the profitability and growth of sectors like health and agriculture. This period led to digital innovation and revolution thereby inducing the insurers to move towards automation. The listing of insurance companies was made on the stock exchange and introduction of analytics induced further competition.

There are various factors to assess the growth and development of insurance industry, out of which the two most important metrics are namely insurance penetration and insurance density.
Insurance penetration = Insurance Premium/ GDP *100
Insurance Density= Insurance Premium/ Population (per capita premium)
Although the above two metrics in insurance play an important role in protecting the GDP, experts argue that premiums should be seen as fees to protect the GDP. Therefore, merely computing the insurance penetration and density measures are not appropriate, rather it is suggested to calculate the proportion of GDP in terms of sums assured. Adequate penetration should be measured by:

a. The sums assured of life insurance should be five to ten times of the total incomes generated
b. There should be eighty to ninety per cent coverage of assets and liabilities generated by the economy.
c. For calculating the density of insurance, average percentage of people above poverty line should be taken into account.
d. Any population induced by government schemes should be taken into consideration.

A composite number comprising all above factors will estimate an accurate insurance penetration.

1.1 Insurance industry overview

Insuring the uninsured- robust government policy has been playing an important role in increasing insurance penetration in India. The increase in the FDI limits to seventy-four percent in the Insurance sector is accepted as a welcome change for attracting more insurance players in general insurance sector. (General Insurance Council, IRDAI,2021)

Technology in Indian insurance market plays an important role in digital transformation. Currently, there are more than hundred and ten Insurtech start-ups operating in India (S&P Global Intelligence, 2022). In terms of technology market in insurance, India is considered as holding the second position in Asia-Pacific, accounting for thirty five percent of the three point seven US billion dollars insurtech-focused venture investments made in the country thereby leading in an increase of the potential insurance customers on one hand enhanced efficiency and on the other hand (Barrett Raymond, Rupawala Husain, & Dumaual RJ, 2022).
India being one of the low penetration countries in terms of insurance, needs automation, innovation and digitization for mitigating inefficiencies. A move from product centric approach to a customer centric approach is highly required. Traditional insurance companies give importance to profitability, product development and competition whereas in order to compete with fintech giants in insurance, they need to embrace technology as a fundamental business tool. They should move from product development to product satisfaction in terms of customers

preference and requirement in today's competitive world. The framework of the paper is structured to meet four objectives: (i) to study the technological innovations and digital initiatives in insurance(ii) to study the role of technological innovations and digital initiatives on customer satisfaction of the company(iii) to analyse the performance of the company in terms of growth and profitability and (iv) to analyse the financial stability and soundness of the company using CARAMELS approach

The study further is divided into four sections-theoretical background and literature review followed by methodology that explain how technology disrupts the insurance industry in Bajaj Allianz General Insurance Company Limited, the role played by technology innovations in customer satisfaction and profitability and measuring the financial stability of the company. The next section discusses the results of the study followed by the findings and implications and suggests recommendations for researchers in the future.

2. Literature Review

The literature review is divided into two sections, Technology disruption in Insurance Sector and Financial Stability and Soundness in Insurance Sector

2.1 Technology disruption in Insurance Sector

(Satuluri & Radhika, 2021)in their study attempted to give deep insights on digital transformation in the Indian Insurance industry. They gave an explanation of how technological innovations are disrupting the insurance sector with a special attention on application of block chain, big data, data analytics and data security in insurance. Pandemic has acted as a catalyst for bringing insurance innovation to digital boards thereby enhancing customer reach, efficiency in cost, and precision in product and services. The study also focussed on use of analytics on risk-based pricing which is still in its evolving stage in the insurance industry. New technologies are also facilitating the companies to enhance their growth and revenue. (Ostagar,2018) observed in his study that technology is indispensable for the evolution and growth of the insurance industry. It not only provides value to the business but also has a potential to influence underwriting processes and increase the revenue. Technological inventions have facilitated the companies in market research, increasing insurance penetration, promoting business, developing markets, providing increased customer satisfaction, after sales service and many more.

(Koprivica, 2018)in his paper aimed at explaining how the startup companies in the financial sector are embracing technology with the changing needs of the consumers in improving customer experience, simplifying the business processes, developing and innovating new products and services and increasing healthy competition. It explains how financial start-up companies in insurance are taking advantage of technology in changing the dynamics of insurance value chain with special focus on impact of technology in emerging economies, the opportunities and challenges that insurtech players pose on incumbents. The paper concludes with a recommendation of merging of traditional insurers with the insurtechs for the survival and growth of the insurance industry.

(Erem Ceylan, 2022)Just like technology holds an indispensable role in disrupting the various sectors around the world like manufacturing, transportation, health care, banking, insurance sector is no exception. Artificial Intelligence has a great impact on responding to consumer needs, improved customer experience, enhanced and transparent communication with the customers thereby leading in mitigation of costs, innovation of customer centric technology driven products and services, and improvement of competitive environment. The author has studied the impact of artificial intelligence innovations by taking examples and used cases of global and Turkish insurance.

(Zia & Kalia, 2022) emphasised that technology explosion is leading to a replacement of technology from one phase to another at a very fast pace in the insurance sector leading a change in insurance paradigm. Emerging technologies are studied in insurance sector by using R studio for analysis. It was found that artificial intelligence, big data and social media play an important role in technology innovation. (Kar & Navin, 2021) in their study compared the implementation of blockchain as a technology in insurance sector by reviewing the existing and relevant case studies with the actual application of blockchain in the real insurance world by using an approach of possibility diffusion with actual practical diffusion.

(Dahiya, Sharma, & Grima, 2022) stressed on the importance of big data in the insurance industry as structured or unstructured form which has an impact on pricing, marketing, rating, customer experience and underwriting. Volume, velocity, variety, veracity, and value which are five Vs of big data helps insurance industry in transforming the raw data into actionable form. Big Data has helped insurance companies in acknowledging the demand of customers and personalising the products for them. Apart from these, it also helps in making right decisions at the right time on risk identification and pricing and fraud detection. (Makayoto, 2019) in his study has attempted to determine the impact of adoption of technological innovations on organisational growth in the insurance industry with a special attention to study of effect of adoption of technological innovation-marketing, product and service on insurance growth. It was found that there was a positive correlation between insurance growth and adoption of technological innovations in terms of marketing and service technological innovation and a negative correlation in terms of product technological innovation. As a whole digitalised products should be used by firms to expand growth.

(Niraula & Kautish, 2019) in their research tried to find out the challenges in adoption of digitization in Nepal both from customer’s and companies. Customers would provide the current digital adoption in insurance in policy implementation, claim settlement, online premium payment, online policy purchasing etc. The companies would provide the challenges faced in adoption of technology and going digital. The analysis showed that insurance companies of Nepal are giving below average services in terms of digitization to meet customer's expectation. Regulatory authority can play an important role in helping the Nepalese insurance companies in going digital resulting in expansion of more insurance penetration. (Frees, 2015) suggested that analytics plays an important role and has contributed in insurance operations and markets. Insurance has long back incorporated analytics, and current market trends indicate that this relationship becomes even more stronger in the coming time. (Ali et al., n.d.) emphasised on the dynamic and changing role of technology on customer experience particularly the role of artificial intelligence on strengthening the customer purchase journey in insurance companies as to how technological advancements can lead to better consumer experiences. (Longhi & Nanni, 2020)emphasised on the dynamic and changing role of technology on customer experience particularly the role of telematics on insurance and innovative mobility services.

2.2 Financial Stability and Soundness in Insurance Sector

(Malik, 2011) in his paper studied the indicators of profitability in the insurance sector of Pakistan. It broadly studied the impact of factors like size and age of company, leverage, volume of capital and loss ratio on profitability of thirty-five non-life insurance companies. It was seen that a negative but significant impact on profitability was found in terms of age of company, leverage and loss ratio whereas size of the company and volume of capital has a positive impact on profitability. (Oscar Akotey, Sackey, Amoah, & Frimpong Manso, 2013) in their research of assessment of financial performance of life insurance company of Ghana has studied the three measures of profitability of ten life insurance industries namely underwriting profit, investment income and net profit for a period from 2000 to 2010 using panel regression. The findings suggested that there was a positive relation of gross written premium with the sales profitability whereas there was a negative relation of profitability with the investment income. Underwriting losses are being incurred in life insurance industries due to over trading. (Joo, 2013) in his paper analysed the impact of heavy underwriting losses on solvency margin of insurance companies of India using the Insurance Solvency International Ltd. (ISI) predictors with the help of multiple regression analysis. The results found out that solvency position of any non-life insurance company is greatly impacted by claim ratio and firm size.

(Ansari & Fola, 2014)has studied the application of CARAMEL model- a regulatory financial stability indicator in assessing the financial soundness and profitability of seven registered life insurer from the period 2008 to 2013. It was found by applying the statistical test of the CARAMEL model that there was a significant difference in financial stability indicators in private and public life insurance companies. (Tsvetkova, Yurieva, Orlaniuk-Malitskaia, & Plakhova, 2019) studied the financial stability of global insurance companies specifically Russian insurance markets by using CAMELS rating system. CAMELS method application results found out that Russian insurance companies are not in a strong financial position. The study concluded that there is a need by the Russian insurance companies for the implementation of international business standards for insurance companies for becoming financially stable and stronger. (Dar & Thakur, 2015) in their study made an attempt to evaluate the financial soundness and profitability of public and private general insurance companies using CARAMEL Model and then applying F tests. Three parameters of CARAMEL model namely Earrings and Profitability, Management soundness and Liquidity were assessed. The results indicated that private non-life insurance companies drained out more of earned premium on claims and costs as compared to public companies. Both public and private companies managed to control management expenses but both the companies failed to maintain the benchmark of hundred percent in terms of liquidity.

The literature review affirms and acknowledges that previous studies have been conducted on digital transformation in insurance sector and role of technological innovations on profitability of the insurance sector ;literature also supports the studies made on measuring the financial stability and soundness of insurance firms using CARAMEL approach; only a few studies seem to have looked at the case study analysis of a general insurance company in terms of technological innovations and its impact on customer experience and profitability . Secondly, this study serves as a guide for insurance companies that are in the process of embracing digital initiatives to provide robust services to customers. Thirdly, no previous work seems to have been conducted on technological innovations and digital transformation related to customer satisfaction and profitability. The goal of this study, therefore, is to conduct a performance analysis of Bajaj Allianz General Insurance company limited to better understand the overall impact of technology disruption and digital initiatives adopted by the company on customer satisfaction and profitability. Also, financial stability and soundness of the company is measured to understand the financial position of the company.

3. Research Methodology

As on March 2022, India's Insurance industry comprises of sixty-seven insurers of which twenty-four are life insurers, twenty-six are general insurers, five are stand-alone health insurers and twelve are re-insurers including foreign reinsurers' branches and Lloyd's India. Out of sixty-seven operating insurers, eight are in public sector and other fifty-nine belong to the private sector. Out of fifty-nine private sector insurers, twenty-three belong to life insurance sector and twenty in general insurance sector, five as stand-alone health insurers and eleven reinsurers. The six private players out of twenty in general insurance business has completed more than twenty years of operations. Bajaj Allianz General Insurance Company Limited is one of the six private companies which has successfully completed twenty years of operations and is considered as the first incumbent to embrace the technological innovations in insurance, and hence selected for the study (IRDAI, 2022).

A case study analysis was chosen because the impact of technology on insurance is potentially far-reaching and can create a new environment in insurance. This exploratory research analysed case study of Bajaj Allianz General Insurance Company Limited, one of the biggest and top players in general insurance in India in terms of technology innovations and digital initiatives adopted the company in the last five years from 2017-18 to 2021-22, what role the technology has played in accelerating the growth, revenue, profitability and customer experience.

For measuring the customer experience, three metrics have been used- Net promoters Score, Grievance Ratio and Claim Settlement Ratio from 2017-18 to 2021-22.
The growth and profitability of the company from 2017-18 to 20121-22 has been measured with the help of analytical ratios and metrics-Gross written Premium, Asset under Management, Profit after Tax, underwriting profits and number of policies issued digitally.
The Financial stability of the company is measured with the help of CARAMELS model for a period five years ranging from 2017-18 to 20121-22. The CARAMELS approach is a model consisting of financial stability indicators for measuring the financial performance and profitability of an insurance company based on analytical ratios. The financial Stability and soundness of an insurance sector including individual insurers are assessed by two different set of indicators namely core set of FSIs and Encouraged set of FSIs.(Das Udaibir S, Podpiera Richard, & Davies Nigel, 2003)
The data sources included academic literature, annual reports and financials of Bajaj Allianz General Insurance Company Limited, annual reports of IRDAI, insurer websites, journals, magazines, newspapers and articles.

4. Results and Discussion

4.1 Technological Innovation and Digital Initiatives in Insurance

It is a need of an hour for the incumbents to understand how they can leverage financial technology in insurance as disruptors and enablers and enter into mutual collaboration as partners for increasing the customer base, offerings and enhancing functional efficiencies. New trends in insurance business are on its rise at the digital age with technology as its foundation since the industrial age and information age. The disruption of fintech in the insurance industry get its birth out of technological innovation with competition by its side and other important factors that influence business growth

A business can get a competitive advantage as a result of application of Insurtech/FinTech by implementing the following technological processes

1. Insurtech helps in delivering better consumer experience by innovating new products to keep pace with their ever-changing demands and preferences, for instance insurtechs facilitate customers with on- demand insurance. It leads to enhanced customer interactions by integrating with the web aggregators and offering best comparison of products to customers. Some examples of online aggregators in India are Policy Bazaar, Secure Now, Renewbuy etc. Customers' expectations are met in a systematic way by providing personalised offers on the basis of their behavioural habits.
2. Data and Analytics can be leveraged to provide more meaningful and rich insights on risk analysis, for instance application of telematics or usage-based car insurance to evaluate real time risk associated with the driver thereby providing customised online or offline insurance policies suitable to a particular customer. Insurers get an advantage of investigating the claims better with real-time data analysis and identify fraud claims, using fraud algorithm for automated claim assessment and evaluation.
3. Simplifying the business processes efficiency through improvement of core insurance processes by the application of automation and robotics, enabling processes where there is less amount of human touch by the application of artificial intelligence and machine learning.

Table 1- Leverage of technology at various stages of Insurance

Stages of Insurance Process	Application of Technology
Marketing, sales and channel management-Customer on-boarding	Voice recording
	AI-based OCR
	eKYC
Customer service delivery channels Aggregators (e-marketplace)	Mobile apps
Core operational value chain services-Claims management	Mobile apps
Core operational value chain services-Investment management	IVR and AI-based chatbots
	AI and big data analytics
Core operational value chain services-Rating	RPA
Core operational value chain services-new business and underwriting	Big data analytics
	RPA
	Self-underwriting
Core operational value chain services--Policy/contract management	RPA
	Mobile apps

Source: (Majumdar Abhijit, Chatterjee Sayantan, Gupta Roshan, & Rawat Chandra Shekhar, 2019)

Table 1 depicts the various technology applications leveraged at different stages of insurance. While technology cannot be considered as a replacement to human centric approach, it is more of an enabler rather than a disrupter. Technological advancements in the field of insurance can help the incumbents to move from traditional insurance to digital insurance. Most of the

traditional insurance players in India has dynamic and flexible IT landscape to cater to emerging technologies either by embracing product innovation or joining hands with insurtechs.
For efficient running of business and reduction in cost, insurers are investing in digitizing every sector of their organisation. As per an industry estimate, because of digitization, cost of a life insurance product can be reduced by 15–20% and non-life insurance products by 20–30%. Not only digital transformation leads to cost benefit and efficiency rather it also helps in creation of synergy opportunities with the customers. Two factors can be differentiators for digital transformation for incumbents, one is increased awareness and the other is simplification of insurance products so that it is easy for a customer to comprehend and buy it in a single click.

4.2 About Bajaj Allianz General Insurance Company Limited
Bajaj Allianz General Insurance Company Limited is a joint venture between Allianz SE, the world's leading insurer, and Bajaj FinServ Limited. The Company received the certificate of registration from IRDA on 2nd May 2001 to conduct general insurance business in India.(bajajallianz,2022) The company today, is considered as one of the industry's top most private insurers spread all over the country. The company has completed its twenty years of care covering a journey from a startup to a recognised industry leader. The company is associated with eleven crore customers with the aid of more than nine thousand employees, eighty thousand agents, more than nine thousand motor dealer partners and over two forty bank partners, brokers, web aggregators and established e commerce platforms.

The company's repositioning initiative to change its brand identity by launching Caringly Yours app for customers has been a success to create a brand image in the minds of consumers that the company cares and protects the financial problems faced by customers relating to health, home, vehicle, business etc. The company strives not only to take journey to the next level but also providing the best customer experience in one go thereby converting insurance to a pull product from the push one.

The company provides plethora of insurance innovative products and services to individuals as well as corporates all across the country. With the help of digital innovation and technological advancements, it thereby leads to enhancement of insurance penetration and aim to bring insurance solutions to doorsteps for customers. Today the company has spread its reach to over one thousand tier 1 and tier 2 cities in India with its digital initiatives. The company focusses on providing customer centric focus and delivering excellent experience for customers through its mobile apps.

Over the last two decades, the company has been one of the best performing general insurance companies among the private players on a consistent basis on both the top and bottom line focusing on profitability, growth and market leadership. It continues to maintain its position among the top performers by continuous application of robust strategy of
(a) strong and judicious underwriting practices,
(b) Varied and Diversified collection of product offerings & instant solutions,
(c) Collecting and retaining premium for Cash flow generation and judicious proceed investments
(d) Concentrating on product innovation, highly satisfied customer experience, quality service and efficient claim settlement through use of technological advancement.
(e) Maintaining the competitive edge through Digitization with simplification and accessibility.
(f) Enhancing the digital assets periodically for giving customers the best experience.

The company focusses on two-fold approach of carrying operations on regular basis, BAU-Business as usual on the one hand and embracing digital transformation to keep itself agile. RUN, TRANSFORM and INNOVATE is the model followed by the company for its operations and technology. The company was awarded as the Best Digital Transformation Initiative (for MAXIMUS) categories at the InsureNext Summit & Awards 2022 organized by Banking Frontiers.

4.3 Technological Innovation and Digital Initiatives in Insurance

A. Pre-Sale

1.The company's flagship products with high content management system are available on its multilingual website-https://www.bajajallianz.com/general-insurance which is now available in seven different languages serving twenty-four lakh users per month. The company's website uses the vernacular theme for providing services to its customers. It has the largest digital reach with more than 2.7 million social media followers and more than one lakh likes which is the highest in the industry.

2. The company for data input uses rich user website/mobile app for customers, agents and brokers-mobile apps namely Caringly Yours, Farmitra, iMitra etc. iMitra the flagship portal and agent app has over ninety products. The agent and virtual service operations app, Ezeetab has now over eighty-seven products.

3. The company's Lead management software (LMS) through social media presence, ad campaign and bancassurance to convert potential customers into buyers at the right time. Videos like #HarGharCaringlyYours & #WohSambhaalLegi has captured watch time of thirteen lakhs hours.

4. Customer focussed Analytics tools to study the behaviour of on-board customers-SAS, Alteryx, Qlik, Python, google analytics, predictive analytics. The company uses customer household level analytics with geospatial tools for effective customer engagement.

5.The company launched a new Corporate Brand Film, which demonstrates how claim in embedded products can be settled in a simplified yet dignified manner by reflecting the claims settled in the last twenty years.

6. The company initiate to create single customer and household identity using Data Lake.

B. Service Period

1. The company has been widely using BOING, an AI enabled self-service BOT across popular mediums like WhatsApp, Customer app - Caring Yours App, Intermediary app and portal - Ezeetab and iMitra which runs on natural language processing (NLP) based technology for handling 24/7 complex and lengthy queries. It is the first in the Indian insurance industry to use chatbot BOING in Amazon's Alexa. This has helped the company in resolving instant customer query and FAQs in voice format.

2. Through eKYC the customers are also required to link Aadhar or Pan card with insurance policy on BOING chat which is for customers convenience. BOT Boing has handled the query of more than seven lakh unique users with twelve lakhs plus conversations.

3.The customer mobile app- Caringly Yours have more than nine lakh active users and Farmitra app have more than one lakh active users. The company also uses Humanoid which interacts with the brand through voice.

4. An omnichannel CRM platform with 360° view of customer has been deployed by the company on sales and services.

5. AI is deployed for automated personalised message and Email to customers.

6. Artificial intelligence for automated personalized email communication.

C. Insurance Claim

1.The company is the first industry initiator for app-based instant motor claim settlement, image-based claim settlements, proactive claim travel claim settlement through blockchain technology and cashless claim settlements by using BOING Voice BOT solution.

2. The company is the first to launch an Integrated ecosystem for minimal data entry and processing of claims. The users can use the workflow based online self-service.

3. Automation in claim process through AI has led to early fraud detection in the claim's lifecycle using predictive modelling

4. RPA (Robotic Process Automation) based BOT, Raftaar for issuance of policy, the real time for policy issue has reduced drastically. It has also let to automation of manual cleansing of data.

5. The company uses a machine learning service from AWS- Amazon Textract leading to simplified insurance claims processing, digitisation of sales process, and finance invoice automation. Wait time was reduced for customers in issue of policies and settling claims.

6. Mobile Apps for claim settlement leveraging blockchain and AI like Travel Ezee – the travel insurance claim app- OCR - ICR (optical character recognition & intelligent character recognition technology which enables a user to purchase travel(international) insurance and settle claim in case of flight delays in a simplified manner.

7. Motor on The Spot (Motor OTS) – a mobile based self-survey application for settlement of motor insurance claims on the spot.

D. Policy Closure

1.The Company deploys a 360° view of customer for the executives to provide them details about past history and issues/resolutions.

E. New business and Underwriting

1. By leveraging big data (predictive)analytics of loss, rate manipulation etc, the company has reduced underwriting cycles.
2. Through RPA (robotic Process Automation) the company has benefitted by automation of underwriting rules
3. With sensory analytics of customers for self-underwriting, the company can evaluate physical age and serious disease, usage of alcohol and smoke etc

F. Security management

The company uses OTP-based authentication of customers for security management.

G. Lapse of Policy

The Insurance Company deploys analytics solutions and data warehousing to maintain, communicate demographic and policy related information of lapsed customers.

4.4 Impact of Technological Innovation and Digital Initiatives on Customer satisfaction

Based on Caringly Yours, the company provides the best customer service focusing on the care and satisfaction of customers. The company strives to give the best customer experience through innovative products, digital initiatives and best claims paying in the insurance industry. An attempt has been made to analyse the continuous best in customer experience provided by the company through various metrics mentioned below. The company has Customer Service Provider of the Year 2020-21 at Quantic's BFSI Excellence Awards.

a. Net Promoter Scores- It is a metric to measure customer experience and forecast revenue growth. It ranges between -100 to +100. Any score between zero to six is counted as -100 and score between nine to ten is counted as +100 Customers are surveyed and provide a score. Customers providing a score of six or less are called detractors, a score of seven to eight are called passives and a score of 9 to 10 ae called promoters. The individual scores are then aggregated to find the net promoter score. Any score above fifty is considered a good score.

b. Grievance Ratio – It is a measure of dissatisfaction of a customer about a standard of service which requires remedial action. The grievance redressal mechanism is a must for every insurance company for providing excellent customer service which in turn is an important metric for business growth. Lower the grievance ratio, better is the performance of company in terms of customer satisfaction.

c. Claims Settlement Ratio is a metric used to measure the insurance company's ability to pay claims. It is calculated as total number of claims settled divided by total claims received in a financial year. It reflects insurers reputation. Greater the value of the ratio, greater is the customer satisfaction for healthy claim settlement by the insurer.

The future trends in digital transformation and fintech in insurance compels the leading traditional organisations to launch new business models, provide more customer-oriented experiences, use the process of optimising operations to cut down costs. For survival of incumbents and satisfaction of customers, there is an urgent need for intelligent analytics. But most of the insurance companies are still using traditional on-premise solutions which lead to prevention of technological innovation driven by data analytics. It is the customer who suffers due to the dearth of digitization.

Table 2 depicts the net promoters score, grievance ratio and claims settlement ratio for a period of five financial years 2021-22, 2020-21, 2019-20, 2018-19 and 2017-18. The company has always committed towards the customers to provide best products and services for maximum satisfaction. The company has succeeded in maintaining the best net promoters score (health and motor) of 65%, highest in the insurance industry and comparable peers in both the financial year 2021-22 and 2020-21 respectively. The net promoters score of 2019-20, 2018-19 and 2017-18 is also greater than fifty which clearly shows that the company is consistent in providing highest customer satisfaction.
The company stives to maintain the lowest grievance ratio in each financial year as compared to industry. In the year 2021-22, the company has the lowest grievance ratio of 1.06 per 10000 policies, 0.51 in the year 2017-18.
The company maintains the highest claim settlement ratio of 73% in the year 2021-22. The claim settlement ratio has increased over the years from 66.7% in 2017-18 to 70.70% in the year 2019-20. The factors that contributed to higher claims ratio is higher motor OD claims, higher health segment claim and higher crop claims.
The company registered the position of highest claims paying ability by maintaining a credit rating of [ICRA]AAA(Stable) awarded by Investment Information and credit Rating Agency.

Table 2-Measures of Customer Satisfaction

Category	2021-22	2020-21	2019-20	2018-19	2017-18

Net Promoters Score	65%	65%	52%	51%	50%
Grievance Ratio (per 10000 policies)	1.06	0.71	0.61	0.53	0.51
Claims Settlement Ratio	73%	68.5	70.70%	68.60%	66.7

Source: (Bajaj Allianz General Insurance Annual Report 2021-2022,2020-21,2019-2020,2018-2019,2017-18)

4.5 Impact of Technological Innovation and Digital Initiatives on Growth and Profitability

Table 3-Growth and Profitability Indicators

Category	2021-22(in crores)	2020-21(in crores)	2019-20(in crores)	2018-19 (in crores)	2017-18(in crores)
Underwriting Profit	33	237	-11	18	293
Profit After Tax	1,339	1,330	999	780	921
AUM-Asset under Management	24,633	23,150	18,746	17,237	14,823
Gross Written Premium	13,788	12,624	12,833	11,097	9,487
Growth in GWP	9.22%	-1.63%	15.64%	16.97%	23.42%
No. of policies issued	2,226	2,497	2,687	2,072	1,303

Source: (Bajaj Allianz General Insurance Annual Report 2021-2022,2020-21,2019-2020,2018-2019,2017-18)

The company with the help of robust technology, customer oriented innovative approach and judicious and prompt underwriting practices has given an opportunity to the company to come out with flying colours when it comes to profitability and growth.

The company reported a Gross Written Premium of ₹13,788 crores in 2021-22 from ₹ 12624 crores in 2020-21 registering a growth of 9.22 percent. The company's gross written premium has increased over the years from ₹ 9847 crores in 2017-18 to ₹ 13, 788 crores in 2020-21 which is a clear indication of growth of the company as a result of digital initiatives. The Company registers itself as one of the most profitable insurance companies in the industry with Profit after Tax of 1,339 crore in 2021-22, which saw a growth of 0.7 percent. It is the highest ever registered profit for the company in any financial year. The growth in profitability was attributable to higher realised investment gains despite registering lower underwriting profits.

The asset under management for the Company has seen a continuous growth in the last five years, with Rs. 9,487 crores in 2017-18, Rs. 11097 in 2018-19 and Rs. 13788 in 2021-22 registering a growth of 6.4 from ₹ 23,150 crore in 2020-21. This shows that the company remains well capitalised throughout the period.

Digital initiatives and technological innovations led to digital Issuance of polices, with a figure of two crore policies, registering 95% of policies as digital issue.

4.6 Measuring Financial Stability and soundness of the company

Table 4 shows the financial viability, profitability and soundness of the Company for a five-year period ranging from financial year 2017-18 to 2021-22

Table-4 Financial Stability Indicators

Category	FSIs used for analysis	2021-2022(%)	2020-2021(%)	2019-2020(%)	2018-2019(%)	2017-2018(%)
1.Capital Adequacy-	Solvency Margin=Available Solvency Margin (ASM) to Required Solvency Margin (RSM) Ratio	344	345	254	255	276
2.Asset Quality	Equities/Total Assets	32.10	28.97	28.60	30.49	35.09
3.Reinsurance and Actuarial Issues	Risk Retention Ratio= Net written premium / (Gross Direct Premium Income + Reinsurance Accepted)	56.3	58.75	62.46	70.1	71
4.Management Soundness	Operating Expenses/Gross Premium	15.70	16.32	18.08	16.28	14.81
5.Earnings/Profitability	Loss Ratio= Net Claim benefits paid/Net Premium	72.96	68.45	70.74	68.6	66.7
	Expense Ratio=Total Expenses/Net Premium	26.70	28.40	30.10	28.10	27.20
	Combined Ratio= Loss Ratio + Expense Ratio	99.64	96.89	100.83	96.69	92.30
	Investment Income Ratio= Investment Income/Net Premium	17.82	16.09	14.93	11.96	13.13
	ROE	17.30	20.30	18.10	16.20	23.00
6. Liquidity	Current Ratio= Current Assets/Current Liabilities	0.37	0.25	0.27	0.14	0.27

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7. Sensitivity to Market Risk, Market-based indicators	Price/earnings (P/E) ratio	NA	NA	NA	NA	NA

Source:(*Bajaj Allianz General Insurance Annual Report 2021-2022*, 2022), (IM)

1. Capital Adequacy is an indicator that measures the financial efficiency and stability of insurers to meet its losses arising out of uncertain and unexpected claims. In this study, the first FSI capital adequacy is measured by the cover of solvency margin which is calculated by dividing available solvency margin (ASM) by required solvency margin (RSM). Higher the solvency margin, higher is the performance of company in terms of capital adequacy in paying its claims and maintaining high liquidity. A solvency margin of 1.50 times or 150% is required to be maintained by every insurance company as stipulated by IRDAI. It has been found out that the Company maintains the required solvency margin of 344 percent in the year 2021-22, 345 percent in 2020-21, 254 percent in 2019-20, 255 percent in the year 2018-19 and 276 percent in the year 2017-18 which is much more than the required margin of 150 percent.

2. Asset Quality is the second parameter for measuring the financial stability which is calculated by dividing the total Equities by Total Assets of an insurance company. The company maintains a well-diversified investment portfolio and healthy asset quality ratio of 32.10 in the year 2021-22, 28.97 in the year 2020-21, 28.60 in the year 2019-20, 30.40 and 35.09 in the year 2018-19 and 2017-18 respectively.

3. Reinsurance and Actuarial Issues shows the capacity of underwriting process and the amount of risk transferred to reinsurers. It is calculated with the risk retention ratio by dividing net written premiums by gross premiums plus reinsurance accepted. Higher ratio is preferred to lower ones which indicates that non-life companies are capable of retaining their own risks rather than passing on to the reinsurers. Bajaj Allianz General Insurance Company's retention ratio has shown a decrease from 71 in 2017-18 to 56.3 in 2021-22 which indicates that the company should look after the cost cutting strategies to fight against the losses.

4. Management Soundness and Financial stability is crucial for all non-life insurance companies. Also referred to as management expense ratio which is calculated as Operating expenses to gross premiums. Every general insurance company is proposed to maintain a single management expense limit of thirty percent of gross premium in a financial year (IRDAI, 2022). Lower ratios are considered better to higher ones, as the former indicate the efficacy of the general insurers in mitigating costs and enrichment of profit margins. The company has been successful in maintaining the management expense ratio of 15.70 percent, 16.32 percent, 18.08 percent 16.28 percent and 14.81 percent in the years 2021-22 to 2017-18 respectively which are below the standard of 30 percent which indicates that the company has managed in cost control thereby increasing profits.

5. Earnings and Profitability is one of the most important indicators for measuring the financial performance of any company. For measuring earnings and profitability five ratios have been taken into consideration.

a. Loss ratio indicates how much claims are paid or payable out of insurance claims and the benefits promised by the general insurers out of their net premium incomes. Higher ratios are rejected whereas lower loss ratios are accepted as it indicates better profitability position for the insurers. The Company has seen a considerable increase in the loss ratio of 66.7 percent in 2017-18 to 72.96 percent in 2021-22 but in all the years it is less than 100 percent.

b. Expense Ratio is a measure of profitability which is calculated by dividing Total Expenses incurred by the Net Premium. The lower the expense ratio, the more the profitability of the insurance company. The results from 2017-18 to 2021-22 shows that the expense ratio of the company has decreased from 27.20 percent to 26.70. In the year 2019-20 it was the highest 30.10 percent owing to covid 19 but reduced considerably over the years. The reason for decrease in expense ratio is largely on account of lower net commissions due to of higher commissions on reinsurance ceded.

c. Combined Ratio, another important indicator of profitability is a combination of Loss Ratio and expense Ratio. The Company registered a profitable combined Ratio of 99.6 percent in the year 2021-22, 96.89 percent in the year 2020-21, 100.8 in the year 2019-20, 96.9 in the year 2018-19 and 92.3 in the year 2017-18 which are expected to be one of the lowest in the insurance industry which reflects that the company maintaining an equilibrium between growth and profitability. The high combined ratio is attributable to higher claims partially counterbalanced by lower expense.

d. Investment Income Ratio measured as insurance company's net investment income divided by its net earned premium. It is an indicator of insurance company's investments profitability which shows the income brought in by the company from investment activities rather than operations. The company has been successful of maintaining an investment income ratio of 17.82 percent in 2021-22 from 16.09 percent in 2020-21 with a growth of 10.75 percent. It can be seen that investment income of the company has considerably increased over a period of five years from 13.13 percent to 17.82 percent in the year 2017-18 to 2021-22.

e. Return on Equity (RoE) is an indicator of profitability that aligns with the wealth maximization of equity shareholders and is measured by dividing the net income by net worth or shareholder's equity. It is an important benchmark for an insurer's profitability and financial strength. Higher ratios are accepted to lower ones, as higher ratios indicate more returns to the shareholders. The company has registered an ROE of 17.3 percent which indicates the highest level of profitability in the year 2021-22 in comparison with insurance peers. Although the ROE has decreased from 20.30 percent to 17.3 percent from 2020-21 to 2021-22 which is highly attributable to lower underwriting profits in 2021-22 owing to increased motor claims which reached pre covid levels in 2022 and higher claim ratio of health segment in terms of both non-covid health claims and covid claims.

f. Liquidity which is the sixth performance indicator measures the capability of the insurers to meet short term obligations and immediate claims of policy holders through adequate cash/ bank balances and highly liquid investments. The liquidity is measured by current ratio which is calculated as current assets divided by current liabilities. Higher ratios are always considered over the lower ones, as the former reflect the insurer's ability to pay its short-term obligations in an efficient manner to the policyholders. The Company's the current ratio has increased over the five-year period with 0.37 percent in 2021-22 indicating that the company maintains adequate liquidity and reserves. The cash position of the company is monitored on a daily basis. The investments in equity are in BSE 100 stock and significant portion of investments are readily marketable which extends good liquidity support.

5.Theoritical and Managerial Implications

This study acknowledges the fact that Bajaj Allianz General Insurance Company Limited is one of the leading players in general insurance sector to initiate technological innovations in every phase of insurance from presale to prompt service, from instant digital claim settlement to immediate and without hassle policy buying and closure. The company has launched various digital apps and a vernacular website available in multiple languages to provide customer centric experience at one click.

The company enjoys a reputed position in terms of customer experience as it is holding the top position in maintaining the highest net promoters score, highest claim settlement ratio, lowest grievance ratio, highest gross written premium, profit after taxes, highest combined ratio and strong asset under management in comparison to its peers.
The company holds a strong position in terms of financial stability and soundness as measured by financial stability indicators of CARAMEL approach- capital adequacy, actuarial and reinsurance issues, management soundness, earnings and liquidity.

There are many driving forces that insurance companies must address:
1. Customer expectations are dynamic; they change with the changing demands. Customers want best and interrupted services at one touch. It is really difficult to maintain customer loyalty. The insurance company which adopts the customer centric approach in terms of products and services are likely to survive in the peer world.

2. Insurance Companies, Incumbents as well as startups in terms of digital transformation have to suffer from mounting market and operational risks and there is a burden of compliance of guidelines issued by regulatory authority from time to time. There are legacy IT and high costs

3. New technological advancements like big data, machine learning, artificial Intelligence, smart analytics provide plethora of opportunities for insurance firms. But many firms lack on the part of understanding on where to start and how to advance.
A majority of insurers have embraced the digital transformation but there is still much scope yet to be discovered and worked on for digitizing end to end operations of insurance companies to provide better customer experiences. The insurance companies although in the journey of digitization from past decades still suffer from various challenges like use of human effort even after automation of products and services while servicing customers, inability of leveraging real time data to offer dynamic customer centric products, inability to leverage cloud irrespective of increasing demands.

There are recommendations for all insurance companies who want to speed up the pace of technological advancements and innovations
1. Every Insurance company must work towards defining their digital vision and creating a future oriented all-embracing digital roadmap.
2. Adopting the practice of regularly reviewing technological processes and being digitally advanced along with being agile in innovating continuously.

6.Conclusion, limitations and future research directions

There are few caveats to be considered while assessing the findings of this study. The study has been conducted for the time period ranging from 2017-18 to 2021-22. There is a possibility that any technological development made in the company in insurance or profitability and financial stability analysis before or after that period might have been missed. In the future, the time frame can be increased by the researchers to study more technological innovations adopted by company and financial soundness of the company. In the present study, core set of financial stability indicators were considered on the basis of data availability, however it is a possibility in future to conduct a study on encouraged set of financial stability indicators for insurance as suggested by working paper of IMF and World Bank. In the insurance sector, very few indicators with technological innovations have been identified. More indicators can be investigated by the future author for analysing the impact of technology advancements and digital transformation in insurance sector. The present study was based on technological innovations and profitability and financial analysis of a specific general insurance incumbent company. In future more case studies can be taken into account with life insurance companies. Further a comparative analysis can be done between public and private sector insurance companies or life insurance and general insurance companies. A comparison between insurtechs in India and rest of countries can also be considered for future research.

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