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IoT Chatbot in Insurance

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ABSTRACT

Purpose: The insurance sector is data-driven, which is very sensitive and prone to being manipulated. The study revolves around the application of the Chatbot technology in the insurance sector, contributing its impact on customer satisfaction & their service experiences forming integral part of CRM.

Design/Methodology: Clustered sampling technique was adopted to arrive at the sample size of 120 respondents from whom the primary data collected for the study. Variables considered are gender, age, occupation, annual income, collaboration, value creation, ideation, application, reliability, accountability, simplicity, anticipation, availability & adaptation. Factor Analysis & Pearson correlation tools were applied to test the hypothesis with the help of the SPSS package.

Findings: Value creation, reliability & adaptability of these chatbots in the industry have proven to be the most influencing variables in improving the customer experiences through innovative technology leading to customer satisfaction. It reflects the overall performance progress of these insurance companies with the adaptation of these bots with a high correlation between customer experience & performance.

Originality/Value: Chatbots are providing real-time value addition to the insurance industry to enhance the efficiency of the service provider. They facilitate in integrating the back end systems of the companies addressing the general queries, booking appointments, product inquiry, transactions, etc. by reducing the operating cost, saves time and resolutions within less turnaround time.

Paper: Empirical Research

Keywords: Chatbot, Insurance Cycle, Innovation & Customer Relationship Management.

I. INTRODUCTION

Insurance is one of the most critical sectors in promoting economic growth by mobilizing the domestic savings among the public mitigating the losses, encourages safe financial stability promotes trade & commerce. Internet of Things (IoT) technologies facilitate insurance companies to examine risks more precisely as these networked devices allow the companies to interact & connect with their customers for better customer relationship management.

Therefore, artificial enabled chatbots can uplift their services, effective communication, improve efficiency & support customers leading to better customer experiences. The ideology of technology is focused on customer self-service, aiming to help the customer better. Chatbots have proven mush faster & easier in assisting the customer better when compared to the insurance agents as they are promising with varied experiences by computing patterns of information and implying them to create more interactions meaningfully, relevant & at real-time. This technology integrates with the backend system for completing the process of the insurance cycle at a lower cost (Jenkins et al., 2007).

II. THEORETICAL FRAMEWORK

The technological changes are driving both the service provider as well the customers to embrace the innovations. The focus of the contribution was towards the application and importance of big data analysis in the banking, financial service & insurance sector through new-age technologies like chatbots, data science, blockchain, artificial insurance, and many more (Ravi & Kamaruddin, 2017). The implications of the chatbots in sharing information, transaction & services through an interactive technology for better customer experiences across the companies that are controlled and supported by a software well programmed in advance to respond based on the queries posed by the users (Zumstein & Hundertmark, 2017). The author has opined the value

creation in the insurance sector with the conceptual applications of customer data briefing theoretical perspectives in the streams of artificial intelligence, service logic & reverse data usage that facilitates in promoting and supporting customer satisfaction (Riikkinen et.all, 2018). The businesses engage the chatbots in offering the first level virtual assistance to the users with pre-defined questions with some basic answers where these bots are involved in a dialogue with some challenges in providing meaningful responses. The benefits of the Chatbot services comprising of password reset, knowledge sharing, information search, etc. can be the solutions to various business problems across the industries (Waghmare, 2019). The comparative study was performed by the authors across the domain-based bots with Intellibot, turned to be superior in customer engagement (Nuruzzaman & Hussain, 2020).

III. CONCEPTUAL FRAMEWORK

Insurance bots are often deployed by insurance companies to assist their customers personally without human interactions. The insurance lifecycle involves phase, namely pre-purchase, purchase, post-purchase & claim settlement. They have been very supportive in improving the customer services assisting round the clock, increased efficiency, accessible developments, end to end integration & analysis with critical insights to the companies.

3.1 Application of Chatbots in Insurance Lifecycle

The chatbots are extensively used and found impressive in the Insurance lifecycle at various stages of operations. Pre-purchase: This stage of the insurance lifecycle is very crucial & vital as it sets a foundation for the relationship between the insurance company and the prospective customers. It involves frequent interactions between the parties to bring the customers on board where the cost is higher & time-consuming. These bots ease it in marketing with quotations, channel support, campaign, customer education & product development with regulatory pricing, and suitable product recommendation. Purchase: It is the second phase of taking the customer interactions to the next level with underwriting & policy acquisition, including activities like document submission related to know your customer (KYC), underwriting, fraud management, policy issue, & invoices. Post-purchase: This is the stage of serving the policyholders of the companies with activities like customer queries, policy endorsements, policy renewals, premium payments, agent inquiries, and refunds. Claim settlements: The final stage is related to the claims management, namely claims First notification of loss (FNOL) validation, assessment, adjudication, reimbursement, subrogation & recovery (Oza et al., 2020).

3.2 Customer Usage of Chatbots

The customers widely accept chatbot technology across the various industrial sectors. The expectations of the prospective users and policyholders are changing with the changes in digital technology. They are predominantly used in the areas of creating awareness, claim processing, premium payment assistance, lead profiling & conversions, creates a robust database, aid for pre & post-sales services, and reduces workload. These are being already used across the insurance companies related to health care, motor, property, travel, rental & homeowner insurance (Singh, A et al., 2019).

4. RESEARCH DESIGN

Customer service plays a crucial role in the success of any business. The insurance sector is facing enormous challenges when compared to other industrial sectors. Digital marketing paves the way to reach out to their customers much faster and economical way to attract potential customers & retain loyal customers. Hence, the Chatbot technology can bridge the gap between customer expectations and service delivery. The attributes of the SERVQL (service quality) model is considered as the base to decide the variables of evaluation.

The objective is to examine the application of chatbots in the insurance sector, leading to customer satisfaction forming an integral part of Customer relationship management. Primary data was collected through a structured questionnaire to obtain responses from the 120 users of chatbots in the insurance sector using a clustered sampling technique. The demographic variables studied involve age, gender, occupation & annual income. The assessment variables considered are collaboration, value creation, ideation, application, reliability, accountability, simplicity, anticipation, availability & adaptation. Statistical Package for Social Science was used to validate the hypothesis with the help of various analytical tools, namely, factor Analysis & Pearson Correlation.

H0: There is no relationship between the Chatbot technology & customer satisfaction.The technological changes are driving both the service provider as well the customers to embrace the innovations. The focus of the contribution was towards the application and importance of big data analysis in the banking, financial service & insurance sector through new-age technologies like chatbots, data science, blockchain, artificial insurance, and many more (Ravi & Kamaruddin, 2017). The implications of the chatbots in sharing information, transaction & services through an interactive technology for better customer experiences across the companies that are controlled and supported by a software well programmed in advance to respond based on the queries posed by the users (Zumstein & Hundertmark, 2017). The author has opined the value creation in the insurance sector with the conceptual applications of customer data briefing theoretical perspectives in the streams of artificial intelligence, service logic & reverse data usage that facilitates in promoting and supporting customer satisfaction (Riikkinen et.all, 2018). The businesses engage the chatbots in offering the first level virtual assistance to the users with pre-defined questions with some basic answers where these bots are involved in a dialogue with some challenges in providing meaningful responses. The benefits of the Chatbot services comprising of password reset, knowledge sharing,

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V. RESULTS

5.1 Reliability Test

"Reliability analysis was performed on the variables comprising of 15 items. The Cronbach's alpha reflected the questionnaire with acceptable reliability ($\alpha = 0.90$, $N = 120$). All the items appeared to be worthy of retention, confirming the high reliability of the items.

5.2 Factor Analysis

Kaiser- Meyer-Olkin measure of sampling adequacy test statistic indicates the proportion of Variance in the variables which is influencing the underlying factors. The Bartlett's test of Sphericity validates the hypothesis projecting the level of correlation between the variables as shown in table 1."

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.873
Bartlett's Test of Sphericity	Approx. Chi-Square	1506.54
	df	45
	Sig.	(0.000)**

Source: Computed from primary data. ** indicates significance at 1 per cent level.

"The KMO measure of sampling adequacy portrays 0.873, above the recommended value of 0.60. The Bartlett's test of

Sphericity was also statistically significant ($\chi 2$ (45) = 1506.54, $p < .01$). The communalities obtained (proportion of item's Variance explained) were all above 0.60, further confirming that each item shared some common variance with other things.

Factor Analysis is a data reduction technique where multiple variables are combined converted as standard components based on their close relationship among themselves. All the loadings were in the same direction, the results of which are presented in table 2."

Table 2: Exploratory Factor Analysis Results

Variables	Loadings	Factors	Eigen Value	Variance (%)	Cumulative Variance (%)
Collaboration	0.695	Innovation	6.936	69.359	69.359
Ideation	0.752				
Value creation	0.834				
Application	0.785				
Accountability	0.881	Customer Experience	1.119	11.193	80.552
Anticipation	0.894				
Reliability	0.921				
Simplicity	0.899				
Adaptation	0.902				
Availability	0.706				

Source: Computed from primary data. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.

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Principal Component Analysis of extraction was used to compute and identify the factor loadings with three iterations considering ten items. The solutions of these item components were examined applying Varimax rotation for the factor loading matrix. As a result, the variables are grouped into two segments. These components are treated as determining factors for the study. The initial Eigenvalues indicated that the first two factors explained the total Variance of 80.55 per cent. The loadings of the primary factor labeled as "Innovation" with the four items include collaboration (0.695), ideation (0.752), value creation (0.834) & application (0.785) contributed in explaining the Variance up to 69.36 per cent. The loadings of the second factor labeled as "Customer experience" with six items consist of accountability (0.881), anticipation (0.894), reliability (0.921), simplicity (0.899), adaptation (0.902) & availability (0.706) explaining the Variance of 11.19 per cent.

There is scope for improved customer service when the insurance companies adopt the mentioned innovative technology in their business model as facilitates in receiving and transmitting data that can be controlled remotely by the insurer by designing smart products to their customers, which assures customer loyalty and also attracts prospective customers.

5.3 Correlation Analysis

Correlation enables in determining the level of relationship between the variables obtained based on the Exploratory Factor Analysis comprising of innovation, customer experience & performance, as reflected in table 3.

Table 3: Correlation Results

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Particulars	Innovation	Customer Experience	Performance
Innovation	1	0.685**	0.885**
Customer Experience	-	1	0.945**
Performance	-	-	1

Source: Computed from primary data. ** Significant @ 1 per cent level.

A statistically significant correlation was obtained between innovation & customer experience ($r = 0.685$, $p < 0.01$), innovation & performance ($r = 0.885$, $p < 0.01$), and customer experience & performance ($r = 0.945$, $p < 0.01$) at 1 per cent level. Performance is highly correlated ($r = 0.945$) with customer experience, followed by innovation ($r = 0.885$). There is moderate correlation between innovation & customer experience ($r = 0.685$).

The technology encourages the service provider in managing risk, customizing the varied experiences of their customers, improves profitability, directs towards effective business processes, creating innovative marketing strategies for their business. It also promotes in collecting customer data related to their products leading a positive relationship with their customers.

The results observed from the factor analysis reflect that value creation with factor loading 0.834 is the most influencing variable among the factor "Innovation," which provokes the insurance companies to adopt innovative technology and integrate the same in their business model. The loadings of the variables reliability 0.921 & adaptation 0.902 are the most influencing in deriving the "Customer experience." Innovation is acting as a bridge between customer satisfaction & quality of service delivered by the insurance providers. The innovative technology adopted as "Chatbots" is highly significant in improving customer experiences, ultimately leading to customer satisfaction. There is a positive & extremely high correlation between the customer experience & performance of the insurance provider with 94.5 per cent based on the EFA factors. Hence, the results provide pieces of evidence of Chatbot technology accepted by the users at a higher level easing their pain points and serving better. Therefore, the null hypothesis is rejected & alternative accepted. The overall analysis describes that customer satisfaction increases when there is an increase in customer experiences that often exceed their expectations against the service delivered by the insurance companies.

VI. CONCLUSION

Chatbot technology is awe-inspiring in supporting customers & prospective users in the insurance sector. The study has proved that emerging technology introduced in customers has been highly reliable & accepted by the customers effectively. Therefore, it is evident that innovation leads to better customer experience, which in turn improves the performance of the insurance companies. The technological innovations in the industry will pave way towards new avenues around various types of insurance markets enabling to streamline the various levels of operations, predictive method of risk ascertainment, enhance customer engagement so that a competitive advantage is created. Hence, there is a strong relationship between Chatbot technology & customer satisfaction in the insurance sector.

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