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## THE EFFECT OF THE INTERNET OF THINGS ON CUSTOMER ENGAGEMENT: AN EMPIRICAL STUDY OF INSURANCE COMPANIES IN INDIA

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#### **ABSTRACT**

IoTs is the most remarkable prominent tool for improving the efficiency of the insurance sector in the long-term perspective, works as a catalyst to increase the performance of the insurance sector for handling the claim settlement and other services that will boost up the to increase the customer engagement. The main aim of this study is to empirically examine the factors influencing the internet of things (IoTs) and customer experience of the Insurance Companies operating in India. In the present era, the internet of things is the backbone of the insurance sectors and focusing to build up the customer engagement in any organization and the success of any organization depends on the effective usages the internet of things for claims settlement and other services decisions regarding the various insurance distribution channels management. The major objective of the study is to explore the opportunities of the internet of things to induce customer engagement in the insurance sector and provide very practically evidence-based information to companies related to the insurance sector. For the purpose of the study, 300 respondents from major cities of west Uttar Pradesh and NCR were taken through 12 insurance companies. This paper provides practically result-oriented information about the internet of things with customer experience in the insurance sector. This study reflects the direction to practitioners engaged with the insurance sector for understanding the essence of the internet of things to build customer engagement in the insurance services and to procure competitive advantage.

#### **KEYWORDS**

Internet of things (IOTs), customer engagement, insurance sector, customer experience.

#### **JEL CODE**

032

#### 1. INTRODUCTION

he internet of things has played a significant role around the globe and changed the model of business, exploring the opportunities for insurers to develop the new products, redefine the distribution channels, and helps to diagnose the future predictions of business. IoTs technologies enable insurance companies to diagnose the risks in the present environment of business and also help to forecast the risk in future business. In the insurance sector, most of the customers are engaged with their agents and brokers through the use of IoTs.

IoTs has been deeply affected customer relationship management and focusing on leveraging technologies for the targeted customer segments of the insurance industries. Insurers have been targeting on digital technologies such as to innovate customers and distribution relationship management. IoTs lead to a change in the behavior of the entire population across geographical boundaries. It is very important to merge and newly redefined IoTs-sourced data with traditional data like customer and policy records. Data management strategy should provide a unified platform, tools, methodologies, and workflows for managing IoT data as a core asset. Data created through IoTs helps to resolve the situation of cyber attack and fraud. The insurer should introduce new more applications for handling the faster claim settlement and protect from cyber-attack and fraud. The internet of Things technology will redefine the way of assessing risk and a wide range of potential implications in the insurance industry.

The main aim of the study is to examine the efficiency of the flow of data in the Indian insurance industry. The other dimensions variables which affect the IoTs implementation and evaluation are such as building a strong relationship, keeping the customer updated, improving the service processes, predicting product failure, and advertising/sales promotion through IoTs.

#### 2. OBJECTIVE OF THE STUDY

The main objective of the study is to study the factors influencing IoTs and customer experience for maintaining the customer engagement by the offered services of insurance companies in UP and NCR. The major objective is to study the customer experience through IoTs in the insurance sector.

#### 3. RESEARCH HYPOTHESIS

H1: There is a significant impact on factor influencing IoT and customer experience in the Insurance Sector.

#### 4. RESEARCH METHODOLOGY

Research Methodology explores the platform of the methods applied to a field of study. A descriptive research has been used in this study and further, it also focuses on the validity and reliability of research as per the norms of standardization.

The questionnaire was administered through the mail and in-person to 385 respondents. The Researcher got a reply from 300 respondents (77.9%). All the respondents belonged to a balanced mix of demographic factors (Age, Sex, marital status, education level, income, employment status, Status of usage of the plan). The respondents belonged to twelve public and private insurance companies of major cities in Utter Pradesh and NCR. The data was collected through the convenience sampling technique. Statements were used for customer engagement related to the previous literature review. The respondent was asked to rate each statement on the Linkert scale of 1 to 5 (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree).

#### 5. SAMPLE DEMOGRAPHIC PROFILE OF POPULATION

The sample size of the research is 300. Out of 300 population size of the sample, most of the respondents are belonged to NCR and west U.P., 90.7% are male and 9.3% are females. The marital status of respondents reflects that 82% are married and 18% are unmarried. The dimensions of the sample size are based on age, academic qualification, profession, annual income, and status of usage insurance plan that are shown respectively.

#### 6. FOCUS AND SCOPE OF THE STUDY

The present study has been undertaken to study has analyzed the factors influencing IoTs and customer experience which impact on the customer engagement in the insurance sector. In addition, this study attempts to explore the factors which affect customer engagement in the insurance sector. This study is restricted to major cities and districts of west Utter Pradesh and NCR.

#### 7. ANALYSIS OF DATA AND INTERPRETATION

The main two basic tools are used to analyze the data that are SPSS 19 & Microsoft Excel. The statistics results were presented in tabular and graphical form. Data Interpretation is the implementation of the process through which data can be reviewed for the purpose of gaining an inference of research study. Chi-Square test was done to find the association between age and Profession with customer engagement in the Indian Insurance Industry.

Age-wise IoT and Customer Experience

Crosstabs

**Case Processing Summary** 

	Val	id Case	Case Case		Total	
	N	%	N	%	N	%
IT1*AGE	300	100.0%	0	0.0%	300	100.0%
IT2*AGE	300	100.0%	0	0.0%	300	100.0%
IT3*AGE	300	100.0%	0	0.0%	300	100.0%
IT4*AGE	300	100.0%	0	0.0%	300	100.0%
IT5*AGE	300	100.0%	0	0.0%	300	100.0%
IT6*AGE	300	100.0%	0	0.0%	300	100.0%

IT1 \* AGE

	Crosstab						
IT1	15 Year - 30 Year	30 Year -45 Year	45 Year -60 Year	60 Year and Above	Total		
Strongly Disagree	1	5	0	0	6		
Disagree	4	10	2	0	16		
Neutral	6	16	4	0	26		
Agree	40	48	28	5	121		
Strongly Agree	46	62	20	3	131		
Total	97	141	54	8	300		

**Chi-Square Tests** 

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.894ª	12	.377
Likelihood Ratio	14.803	12	.252
Linear-by-Linear Association	.229	1	.632
N of Valid Cases	300		

IT2 \* AGE

	Crosstab						
IT2	15 Year - 30 Year	30 Year -45 Year	45 Year -60 Year	60 Year and Above	Total		
Strongly Disagree	0	4	0	0	4		
Disagree	2	7	1	0	10		
Neutral	6	17	7	0	30		
Agree	38	54	19	2	113		
Strongly Agree	51	59	27	6	143		
Total	97	141	54	8	300		

**Chi-Square Tests** 

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.322a	12	.346
Likelihood Ratio	15.946	12	.194
Linear-by-Linear Association	.100	1	.751
N of Valid Cases	300		

IT3 \* AGE

	Crosstab					
IT3	15 Year - 30 Year	30 Year -45 Year	45 Year -60 Year	60 Year and Above	Total	
Strongly Disagree	0	7	3	0	10	
Disagree	2	9	1	0	12	
Neutral	9	15	6	0	30	
Agree	42	51	20	3	116	
Strongly Agree	44	59	24	5	132	
Total	97	141	54	8	300	

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.876ª	12	.456
Likelihood Ratio	16.170	12	.184
Linear-by-Linear Association	.531	1	.466
N of Valid Cases	300		

#### IT4 \* AGE

	Crosstab						
IT4	15 Year - 30 Year	30 Year -45 Year	45 Year -60 Year	60 Year and Above	Total		
Strongly Disagree	0	7	1	0	8		
Disagree	0	6	0	0	6		
Neutral	6	13	5	0	24		
Agree	40	51	21	4	116		
Strongly Agree	51	64	27	4	146		
Total	97	141	54	8	300		

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15. 199ª	12	.231
Likelihood Ratio	20.373	12	.060
Linear-by-Linear Association	.722	1	.395
N of Valid Cases	300		

#### IT5 \* AGE

	Crosstab					
IT5	15 Year - 30 Year	30 Year -45 Year	45 Year -60 Year	60 Year and Above	Total	
Strongly Disagree	0	8	0	0	8	
Disagree	2	6	0	0	8	
Neutral	9	17	6	0	32	
Agree	51	48	31	4	134	
Strongly Agree	35	62	17	4	118	
Total	97	141	54	8	300	

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	22.481ª	12	.032
Likelihood Ratio	27.955	12	.006
Linear-by-Linear Association	.009	1	.926
N of Valid Cases	300		

#### IT6 \* AGE

	Crosstab				
IT6	15 Year - 30 Year	30 Year -45 Year	45 Year -60 Year	60 Year and Above	Total
Strongly Disagree	0	3	1	0	4
Disagree	0	4	2	0	6
Neutral	6	19	9	0	34
Agree	48	62	21	3	134
Strongly Agree	43	53	21	5	122
Total	97	141	54	8	300

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13. 298ª	12	.348
Likelihood Ratio	17.492	12	.132
Linear-by-Linear Association	2.158	1	.142
N of Valid Cases	300		

#### Age- wise IoT affect for customer engagement in the Insurance sector

H1: There is a significant impact on factor influencing IoT and customer experience in the Insurance Sector

S. No.	Dimension	H1	Calculated Value	Remarks
1	•	IoT increase and improves the flow of data about customer's behaviour is independent of age	.377	H1 Accepted
2		IoT enables building a strong relationship with customer by providing them specialised service is independent of age	.346	H1 Accepted
3	Keeping customer updated	IoT enables customer updated is independent of age	.456	H1 Accepted
4	Improving service process	IoT helps improving service is independent of age	.231	H1 Accepted
5	Predicting product failures	IoT enables product failure is independent of age	.032	H1 Rejected
6	Advertising and sales pro-	IoT increases the accuracy of advertising and sales promotions is independent of age	.348	H1 Accepted
	motion through IoT			

#### Inference

From H1, it is inferred that customer engagement through IoT and customer experience is affected by such variables as predicting product failure is dependent on age. While the variables such as the flow of data, building strong relationships, keeping customer updates, service process, and advertising /sales promotion through IOT are independent of age. Adequate flow of data information enables the service process adequacy and more customer update through sales promotion from IoTs. The whole process is helpful to engage more customers in the insurance industry and updating the channel services through technological advancement. Most of the older people are not aware of technological advancement and not able to compare insurance plans so that they are not able to predict any information

regarding product failure. IoTs affect the customer experience in the insurance industry and work as a catalyst to increase customer engagement in the insurance sector.

Profession -wise IoTs and customer experience

Crosstabs

**Case Processing Summary** 

	Val	id Case	Case Missing		1	otal
	N	%	N	%	N	%
IT1*PROFESSION	300	100.0%	0	0.0%	300	100.0%
IT2* PROFESSION	300	100.0%	0	0.0%	300	100.0%
IT3* PROFESSION	300	100.0%	0	0.0%	300	100.0%
IT4* PROFESSION	300	100.0%	0	0.0%	300	100.0%
IT5* PROFESSION	300	100.0%	0	0.0%	300	100.0%
IT6* PROFESSION	300	100.0%	0	0.0%	300	100.0%

#### IT1 \* PROFESSION

	Crosstab					
IT1	Govt. Employee	Private Employee	Business	Others	Total	
Strongly Disagree	1	4	1	0	6	
Disagree	5	8	3	0	16	
Neutral	5	19	2	0	26	
Agree	16	74	20	11	121	
Strongly Agree	16	82	24	9	131	
Total	43	187	50	20	300	

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.875ª	12	.540
Likelihood Ratio	13.444	12	.338
Linear-by-Linear Association	4.051	1	.044
N of Valid Cases	300		

#### IT2 \* PROFESSION

		Crosstab					
IT2	Govt. Employee	Govt. Employee Private Employee Business Others					
Strongly Disagree	0	4	0	0	4		
Disagree	1	8	0	1	10		
Neutral	9	14	7	0	30		
Agree	15	73	17	8	113		
Strongly Agree	18	88	26	11	143		
Total	43	187	50	20	300		

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.131 <sup>a</sup>	12	.234
Likelihood Ratio	18.899	12	.091
Linear-by-Linear Association	2.381	1	.123
N of Valid Cases	300		

#### IT3 \* PROFESSION

	Crosstab					
IT3	Govt. Employee	Private Employee	Business	Others	Total	
Strongly Disagree	1	6	2	1	10	
Disagree	2	6	4	0	12	
Neutral	8	21	1	0	30	
Agree	14	70	21	11	116	
Strongly Agree	18	84	22	8	132	
Total	43	187	50	20	300	

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.344ª	12	.279
Likelihood Ratio	17.479	12	.132
Linear-by-Linear Association	.259	1	.611
N of Valid Cases	300		

#### IT4 \* PROFESSION

	Crosstab				
IT4	Govt. Employee	Private Employee	Business	Others	Total
Strongly Disagree	0	3	4	1	8
Disagree	0	6	0	0	6
Neutral	9	13	2	0	24
Agree	14	74	20	8	116
Strongly Agree	20	91	24	11	146
Total	43	187	50	20	300

**Chi-Square Tests** 

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.846ª	12	.021
Likelihood Ratio	24.271	12	.019
Linear-by-Linear Association	.017	1	.895
N of Valid Cases	300		

#### **IT5 \* PROFESSION**

	Crosstab					
IT5	Govt. Employee	Private Employee	Business	Others	Total	
Strongly Disagree	0	4	4	0	8	
Disagree	3	4	1	0	8	
Neutral	10	17	5	0	32	
Agree	14	89	19	12	134	
Strongly Agree	16	73	21	8	118	
Total	43	187	50	20	300	

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.461 <sup>a</sup>	12	.024
Likelihood Ratio	23.495	12	.024
Linear-by-Linear Association	.852	1	.356
N of Valid Cases	300		

#### **IT6 \* PROFESSION**

	Crosstab					
IT6	Govt. Employee	Private Employee	Business	Others	Total	
Strongly Disagree	0	3	0	1	4	
Disagree	1	2	3	0	6	
Neutral	9	20	3	2	34	
Agree	12	88	23	11	134	
Strongly Agree	21	74	21	6	122	
Total	43	187	50	20	300	

#### **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.224ª	12	.109
Likelihood Ratio	17.732	12	.124
Linear-by-Linear Association	.324	1	.569
N of Valid Cases	300		

Profession- wise IoT affect for customer engagement in the Insurance sector

H1: There is a significant impact on factor influencing IoT and customer experience in the Insurance Sector

S.	Dimension	H1	Calculated	Remarks
No.			Value	
1	Improves flow of data	IoT increase and improves the flow of data about customer's behaviour is independent of Profession	.540	H1 Accepted
2	Building strong relation- ship	IoT enables building a strong relationship with customer by providing them specialised service is independent of Profession	.234	H1 Accepted
3	Keeping customer updated	IoT enables customer updated is independent of Profession	.279	H1 Accepted
4	Improving service process	IoT helps improving service is independent of Profession	.021	H1 Rejected
5	Predicting product failures	IoT enables product failure is independent of Profession	.024	H1 Rejected
6	Advertising and sales pro- motion through IoT	IoT increases the accuracy of advertising and sales promotions is independent of Profession	.109	H1 Accepted

#### Inference

From H1, it is inferred that customer engagement through IoTs and customer experience is affected by such variables as improving service processes and predicting product failure are dependent on the profession. While the variables such as the flow of data, building strong relationships, keeping customer updates, and advertising /sales promotion through IOT are independent of the profession. IoT helps to improve the flow of data and able to maintain a strong relationship with its customers without discriminating against their profession. Further, it helps to update the customer database information to boost up customer engagement in the insurance sector. But improving the service process and predicting product failure depends on the profession because an expert in IT can easily find the gap in the service process and forecasting the product plan to maintain robust customer engagement in the insurance sector.

#### 8. FINDINGS AND CONCLUSION

From the data analysis, it is inferred that IoTs and customer experience is affected by such variable as predicting product failure is dependent on age. While another variable like the flow of data, building strong relationships, keeping customer updates, service process, and adverting/sale promotion through IoTs is independent of age. Adequacy of the flow of data information makes more efficient services and updates the customer database. The entire process of IoTs is a catalyst for customer engagement in the insurance sector. Older age people are not aware of technological advancement and not able to compare insurance plans so that they are not able to predict any information regarding product failure. IoTs affect the customer experience entirely in the insurance sector and work as the main component to increase customer engagement in the insurance sector. IoTs provide accurate data information that is useful to both insurers and the insured for taking preventive action against the losses in the future. IoTs technology is dynamic and changing continuously, it has become a big challenge before the insurer to cope with it and design new products accordingly.

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