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A Study on the Impact of Information and Communication Technology on E-Commerce Customer Satisfaction

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ABSTRACT

The swift evolution of Information and Communication Technology (ICT) has profoundly altered the e-commerce sector, influencing customer experiences and levels of satisfaction. This research investigates the effects of ICT on customer satisfaction within e-commerce by examining critical elements such as website usability, security measures, digital payment options, and customer support services. Employing a mixed-methods approach, data was gathered through surveys and interviews with online consumers to evaluate their views on ICT

driven improvements in e-commerce platforms. The results reveal that efficient website navigation, secure transaction processes, and attentive customer service play a crucial role in enhancing customer satisfaction and loyalty. Furthermore, the integration of emerging technologies like artificial intelligence, chatbots, and tailored recommendations significantly enriches the e-commerce experience. The study concludes that companies that prioritize investment in sophisticated ICT solutions can boost customer engagement and retention, thereby achieving a competitive edge in the digital marketplace.

Introduction

The emergence of Information and Communication Technology (ICT) has revolutionized various industries, with e-commerce being one of the most significantly impacted sectors. As businesses increasingly transition to digital platforms, ICT plays a crucial role in enhancing operational efficiency, improving customer experiences, and fostering long-term customer satisfaction. E-commerce platforms leverage ICT tools such as high-speed internet, secure payment gateways, artificial intelligence, chatbots, and data analytics to streamline transactions and personalize customer interactions. Customer satisfaction in e-commerce is influenced by several ICT-driven factors, including website usability, transaction security, customer support efficiency, and the responsiveness of digital services.

OBJECTIVES

· Assess ICT Role in Enhancing Customer Experience

· Identify Key ICT Factors Affecting Customer Satisfaction

· Measure Customer Satisfaction with ICT in E-Commerce

· Identify ICT-Related Challenges in E-Commerce

· Suggest Improvements for Enhancing Customer Satisfaction

· Explore Future Trends in ICT for E-Commerce

STATEMENT OF THE PROBLEM

In the digital age, Information and Communication Technology (ICT) has become an integral part of e-commerce, transforming the way businesses interact with customers. The rapid advancement of ICT has led to significant improvements in website functionality, transaction security, customer service automation, and personalized shopping experiences. However, despite these technological enhancements, customer satisfaction in e-commerce remains a critical concern due to challenges such as cybersecurity threats, digital payment issues, inefficient customer support, and technology adaptation

gaps. Many e-commerce businesses struggle to fully optimize ICT solutions to meet customer expectations, leading to dissatisfaction, cart abandonment, and reduced customer loyalty.

SCOPE OF THE STUDY

This research aims to assess the influence of Information and Communication Technology (ICT) on customer satisfaction within the e-commerce industry. It investigates how different ICT elements, such as website usability, digital payment solutions, security protocols, artificial intelligence, and automated customer support, affect the online shopping experience. The primary audience for this study includes e-commerce enterprises and online consumers, focusing on customer perceptions, satisfaction rates, and the obstacles related to the adoption of ICT. Data will be gathered through surveys, interviews, and case studies of selected ecommerce platforms to offer insights into how effectively ICT enhances customer satisfaction.

NEED OF THE STUDY

The growing dependence on Information and Communication Technology (ICT) within e commerce has significantly altered the dynamics of business-customer interactions,

highlighting the importance of understanding its influence on customer satisfaction. As the online retail landscape becomes increasingly competitive, it is crucial for businesses to leverage ICT effectively to improve customer experiences, foster trust, and facilitate smooth transactions. Nevertheless, numerous e-commerce platforms encounter obstacles such as cybersecurity risks, subpar website usability, inadequate customer support, and insufficient personalization, all of which can detrimentally impact customer satisfaction and loyalty.

· **Primary data** will be collected directly from e-commerce customers through structured online surveys distributed via email, social media platforms, and e-commerce websites. Respondents will provide firsthand insights into their experiences, satisfaction levels, and perceptions of ICT in online shopping.

· **Secondary data** will be obtained from existing literature, industry reports, and academic studies related to e-commerce and customer satisfaction. Sources may include research articles, reports from e-commerce companies, customer reviews, and market analysis. These secondary sources will help validate and compare findings from primary data collection, ensuring a comprehensive understanding of the research topic.

AREA OF STUDY

The area of study is Coimbatore district. Coimbatore, popularly known as Manchester of South India, is situated in western part of Tamil Nadu.

LIMITATION OF STUDY

This study aims to provide valuable insights into the impact of Information and Communication Technology (ICT) on e-commerce customer satisfaction, it has certain limitations. Firstly, the study is limited to a specific region or market, which may affect the generalizability of the findings to a broader global audience. Secondly, the research relies on survey responses and interviews, which may be influenced by personal biases, subjective opinions, and differences in individual experiences. Additionally, rapid technological advancements in ICT mean that the findings may become outdated over time as new innovations emerge.

LITERATURE REVIEW

Turban et al. (2018)[1]discussed the role of Information and Communication Technology (ICT) in improving e-commerce customer satisfaction. The study highlighted how ICT tools such as live chat, AI-driven recommendations, and secure payment gateways enhance the customer experience. The research emphasized that companies leveraging ICT effectively could significantly improve customer trust and loyalty. The authors also pointed out that the availability of high-speed internet and mobile applications has facilitated seamless shopping experiences, leading to increased sales and repeat customers. The study concluded that e commerce platforms integrating advanced ICT solutions tend to have higher customer satisfaction rates due to reduced transaction times and personalized experiences.

Laudon and Traver (2020)[2]explored the technological advancements in e-commerce and their effect on customer satisfaction. Their research demonstrated that businesses implementing cloud computing, big data analytics, and automated customer support witnessed enhanced user experiences. They argued that ICT enables businesses to understand customer preferences better, thus offering personalized product recommendations. Additionally, the study found that websites with responsive design and easy navigation contribute to higher customer satisfaction.

Gefen and Straub (2000)[3]conducted an early study on the impact of trust in e-commerce, facilitated by ICT innovations. Their findings suggested that secure and transparent online transactions build trust among customers. The authors emphasized that SSL encryption, two factor authentication, and blockchain technology play a crucial role in enhancing consumer confidence. They further noted that ICT tools enabling real-time communication, such as chatbots and social media interactions, increase consumer trust and satisfaction. The study concluded that businesses investing in robust ICT security infrastructures could significantly boost customer retention and satisfaction levels.

Pavlou and Fygenson (2006)[4]examined the effect of ICT on customer behavior in e commerce. Their research highlighted how the ease of access to information, facilitated by ICT, influences purchasing decisions. They found that customers who could easily find product details, user reviews, and price comparisons were more likely to make informed decisions and be satisfied with their purchases..

AlDebei and Avison (2010)[5]explored the impact of ICT-driven business models on customer satisfaction in e-commerce. They argued that businesses adopting innovative ICT frameworks, such as omnichannel retailing and digital payment systems, create seamless shopping experiences. The study found that mobile commerce, enabled by ICT, enhances convenience and accessibility for customers. Additionally, the integration of artificial intelligence in customer service, such as automated queries and virtual assistants, further improves satisfaction levels. The authors concluded that ICT-driven business models contribute to sustained customer engagement and loyalty.

RESEARCH FINDINGS

CHI-SQUARE ANALYSIS

Null Hypothesis (H0): There is no significant relationship between age group and frequency of ict feature usage in online shopping

Alternative Hypothesis (Ha): There is a significant relationship between age group and frequency of ict feature usage in online shopping

Age group and frequency of ict feature usage in online shopping

Age * Frequency of ICT Feature Usage in Online Shopping Crosstabulation

Count

		Frequency of ICT Feature Usage in Online Shopping				Total
		Always	Often	Sometimes	Never	
Age	Below 20	8	11	5	5	29
	21-30	25	7	9	2	43
	31-40	11	12	9	5	37
	Above 40	9	11	10	3	33
Total		53	41	33	15	142

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.064[a]	9	.089
Likelihood Ratio	15.042	9	.090
Linear-by-Linear Association	.583	1	.445
N of Valid Cases	142		

> a. 4 cells (25.0%) have expected count less than 5. The minimum expected count is 3.06.

Source: Computed from Primary data

INFERENCE:

the Pearson Chi-Square value is 15.064, with a significance value of 0.089, which is greater than the standard significance level of 0.05. This indicates that there is no statistically significant relationship between age group and frequency of ICT feature usage in online shopping. Therefore, the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_a) is rejected, confirming that age group does not significantly influence the frequency of ICT feature usage in online shopping among the respondents

Hypothesis No.2

Null Hypothesis (H0): There is no significant relationship between gender and overall satisfaction with ICT impact in e-commerce

Alternative Hypothesis (Ha): There is a significant relationship between gender and overall satisfaction with ICT impact in e-commerce

Gender and overall satisfaction with ICT impact in e-commerce

Gender * Overall Satisfaction with ICT Impact in E-Commerce Crosstabulation						
Count						
		Overall Satisfaction with ICT Impact in E-Commerce				Total
		Highly satisfied Satisfied		Neutral	Dissatisfied	
Gender	Male	22	23	22	6	73
	Female	29	20	7	13	69
Total		51	43	29	19	142

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2- sided)
Pearson Chi-Square	11.404[a]	3	.010
Likelihood Ratio	11.849	3	.008
Linear-by-Linear Association	.367	1	.544
N of Valid Cases	142		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.23.			

Source: Computed from Primary data

INFERENCE:

Table No. 4.2.2 reveals that the Pearson Chi-Square value is 11.404, with a significance value of 0.010, which is less than the standard significance level of 0.05. This indicates a statistically significant relationship between gender and overall satisfaction with ICT impact in e-commerce. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted, confirming that gender significantly influences overall satisfaction with ICT impact in e-commerce among the respondents.

CORRELATION ANALYSIS

Hypothesis No.3

Null Hypothesis (H0): There is no significant correlation between most impactful ict feature for shopping experience and major ict-related issues in online shopping **Alternative Hypothesis (Ha):** There is a significant correlation between most impactful ict feature for shopping experience and major ict-related issues in online shopping Most impactful ict feature for shopping experience and major ict-related issues in online shopping

Correlations			
		Most Impactful ICT Feature for Shopping Experience	Major ICT Related Issues in Online Shopping
Most Impactful ICT Feature for Shopping Experience	Pearson Correlation	1	.071
	Sig. (2-tailed)		.400
	N	142	142
Major ICT-Related Issues in Online Shopping	Pearson Correlation	.071	1
	Sig. (2-tailed)	.400	
	N	142	142

Source: Computed from Primary data

INFERENCE:

The Pearson correlation coefficient is 0.071, with a significance value of 0.400, which is greater than the standard significance level of 0.05. This indicates that there is no statistically significant correlation between the most impactful ICT feature for shopping experience and major ICT-related issues in online shopping. Therefore, the null hypothesis (H_0) is accepted,

and the alternative hypothesis (H_a) is rejected, confirming that the most impactful ICT feature for shopping experience does not significantly correlate with major ICT-related issues in online shopping among the respondents.

Hypothesis No.4

Null Hypothesis (H0): There is no significant correlation between overall satisfaction with ICT impact in e-commerce and key improvement for enhancing online shopping experience **Alternative Hypothesis (Ha):** There is a significant correlation between overall satisfaction with ICT impact in e-commerce and key improvement for enhancing online shopping experience

Overall satisfaction with ICT impact in e-commerce and key improvement for enhancing online shopping experience

Correlations			
		Overall Satisfaction with ICT Impact in E Commerce	Key Improvement for Enhancing Online Shopping Experience
Overall Satisfaction with ICT Impact in E-Commerce	Pearson Correlation	1	.230**
	Sig. (2-tailed)		.006
	N	142	142
Key Improvement for Enhancing Online Shopping Experience	Pearson Correlation	.230**	1
	Sig. (2-tailed)	.006	
	N	142	142
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Computed from Primary data

INFERENCE:

The Pearson correlation coefficient is 0.230, with a significance value of 0.006, which is less than the standard significance level of 0.01. This indicates a statistically significant positive correlation between overall satisfaction with ICT impact in e-commerce and key improvements for enhancing the online shopping experience. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted, confirming that higher overall

satisfaction with ICT impact in e-commerce is significantly associated with the need for key improvements to enhance the online shopping experience among respondents.

ANOVA ANALYSIS

Hypothesis No.5

Null Hypothesis (H0): There is no significant association between age group and future ICT trends shaping E-Commerce

Alternative Hypothesis (Ha): There is a significant association between age group and future ICT trends shaping E-Commerce

Age group and future ICT trends shaping E-Commerce

ANOVA					
Future ICT Trends Shaping E-Commerce					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	15.377	3	5.126	4.340	.006
Within Groups	162.989	138	1.181		
Total	178.366	141			

Source: Computed from Primary data

INFERENCE:

The F-value is 4.340, with a significance value of 0.006, which is less than the standard significance level of 0.05. This indicates a statistically significant association between age group and future ICT trends shaping e-commerce. Therefore, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted, confirming that age group significantly influences perceptions of future ICT trends shaping e-commerce among respondents.

Hypothesis No.6

Null Hypothesis (H0): There is no significant association between educational qualification and biggest frustration with ICT in e-commerce

Alternative Hypothesis (Ha): There is a significant association between educational qualification and biggest frustration with ICT in e-commerce

Educational Qualification and biggest frustration with ICT in e-commerce

ANOVA					
Biggest Frustration with ICT in E-Commerce					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.764	3	.921	.779	.507
Within Groups	163.152	138	1.182		
Total	165.915	141			

Source: Computed from Primary data

INFERENCE:

The F-value is 0.779, with a significance value of 0.507, which is greater than the standard significance level of 0.05. This indicates that there is no statistically significant association between educational qualification and the biggest frustration with ICT in e commerce. Therefore, the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_a) is rejected, confirming that educational qualification does not significantly influence the biggest frustration with ICT in e-commerce among respondents.

SUGGESTIONS

1. E-commerce platforms should enhance ICT features to improve the overall shopping experience.

2. Real-time customer support, such as live chat, should be optimized for faster response times.

3. Customer reviews and ratings should be highlighted more effectively to guide purchase decisions.

4. Website and app speed should be prioritized to ensure a seamless shopping experience.

5. Efforts should be made to enhance loading speed to retain customer engagement and satisfaction.

CONCLUSION

Overall, the findings highlight the growing importance of ICT in enhancing customer satisfaction in e-commerce. Businesses should focus on optimizing their platforms by improving website performance, integrating advanced personalization techniques, strengthening cybersecurity measures, and adopting emerging technologies like AR/VR and AI-driven personal shopping assistants. These advancements will help e-commerce platforms provide a seamless, secure, and satisfying shopping experience, ultimately fostering customer trust and long-term engagement.