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Impact of Digital Transformation in Insurance Services on Customer Satisfaction: A Case Study of Uttarakhand

¹Anuja Dhyani, ²K. R. Jain, *¹Preeti

¹ H.N.B. Garhwal University, Srinagar

² D.A.V. (P.G.) College, Dehradun

*Corresponding author Email: willp1996k@gmail.com

Abstract: The digital transformation in India serves as a crucial catalyst for development, revolutionizing industries globally. The COVID-19 pandemic has accelerated this shift, driving the insurance sector toward unprecedented digitalization. This research sheds light on digital transformation's potential to enhance customer satisfaction, providing practical insights for industry stakeholders. A survey questionnaire was administered to 200 customers, and Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology was utilized to examine structural relationships between latent constructs. The study's results provide a nuanced understanding of digital transformation's role in shaping customer experiences, contributing to the growing body of knowledge on digital transformation in insurance. The study's findings have significant implications for insurance providers, emphasizing the importance of investing in digital infrastructure.

Keywords: Digital transformation, insurance sector, customer satisfaction, Insurtech, PLS- SEM.

1. INTRODUCTION

The global health crisis has brought forth a seismic implementation of agile business practices, and the insurance sector is no exception. In India, the pandemic acted as a catalyst for the digital insurance sector, driving digital transformation and innovation at an unprecedented pace. Digital insurance refers to creating and providing insurance and connected financial services through digital solutions (Stanković, J., et al. 2022). However, this rapid transition highlighted some challenges, such as cybersecurity concerns and the digital divide, it also paved the way for a more accessible, efficient, and customer-centric insurance ecosystem. Under current conditions a company can rely on maintaining competitive positions only with proper use of information technology. This is important for companies operating in the field of financial intermediation, where it is important to use modern technologies to promote their products, ease the access to users, and accounting in accordance with IFRS and the regulator (Mustafina, A.A., et al. 2020). In response to this shift, the IRDAI has made a notable move towards promoting digitalization in the insurance sector. From April 1, 2024, IRDAI has mandated for insurers to issue digitally issued insurance policies. This move is expected to further accelerate the integration of digital insurance in India. Digital insurance, known as demat insurance and E-insurance, is a process that enables policyholders to acquire and hold electronic insurance policies in a digital wallet or e-insurance Account (e-iA). Digital transformation in insurance removes the hassle of physical documents, making it more efficient for the management of various insurance policies, including life, health, and general insurance coverage. With e-insurance, customers can easily manage their physical policy documents, which are converted into modifiable online objects. They can access their policy details, make changes, and renew their policies online without the hassle of physical paperwork. The benefits of e-insurance are numerous. Policyholders can retrieve their insurance information anytime, anywhere through digital platforms, which enhances their satisfaction and provides immediate access to important documents. Moreover, opening an e-iA is easy and free for customers, with the cost of opening and maintaining the account borne by the insurer. The insurance industry has adapted to new realities, driven by technological progress and changing customer preferences, and intensified by the pandemic's disruption. The pandemic has accelerated the shift towards digitalization, forcing insurers to adapt and innovate to remain relevant. Indian insurance industry has endured a notable surge in demand for digital insurance services, driven by the growing penetration of smartphones, increasing internet connectivity, and the government's push for digitalization. In 2015, IRDAI introduced the concept of e-insurance, which allows policyholders to store their insurance policies in electronic format. This initiative aimed to minimize the

paperwork and documentation making it easier for customers to manage their policies. The pandemic has fast-tracked the adoption of digital insurance in India. With social distancing norms in place, customers have increasingly turned to digital channels to purchase and manage their insurance policies. Insurers have adopted cutting-edge technologies like AI, blockchain, and IoT to transform customer experience and operational effectiveness.

2. LITERATURE REVIEW

Digital Insurance and Customer Satisfaction

The application of the internet in the insurance business has increased as a result of the development of new technologies, and this introduction has modernized the insurance business. Insurance companies are more engaged and have more opportunities because of digital connectedness (Rajput, S., Ahmad, S., 2022). Digitalization is the catalyst that provides greater opportunities and experiences to meet the customer's needs more effectively. It not only leads to cost reduction but also reduced human intervention, greater transparency, increased quality of services and ultimately to increased customer satisfaction (Gupta, R., 2019). Today insurers, policyholders, intermediaries and regulators interact in an increasingly online world with profound implications for what has up to now been a traditionally operating industry. While the growing threats to consumer and business data from cyber-attacks constitute major sources of risk for insurers, at the same time cyber insurance has become the fastest growing commercial insurance product in many jurisdictions (Marano, P., et al. 2016). Insurtech, a combination of 'insurance' and 'technology', as an area of Fintech has become an essential innovation strategy of insurance companies (Kim, E., Kim, Y., 2025). Regulatory reforms, such as amendments to insurance laws, are paving the way for e-insurance growth. The expanding online population and shifting consumer behavior towards e-commerce are creating a lucrative market for digital financial products, with online research increasingly translating into insurance sales (Nakum, D., 2018). While other industries within the financial sector have strongly embraced the internet to obtain sustainable competitive advantage, the insurance industry has been slow to fully adopt e-commerce (Banga, C.K., Bhome, S.M., 2016). Newer technologies like AI and machine learning are facilitating companies register higher growth both on cross and upsell opportunities which will indisputably have an immense and long-term positive impact on the bottom line of most insurance companies thus enhancing profitability (Satuluri, R.K., 2021). The rapid increase in internet usage and e-commerce activities draws attention to consumer satisfaction and loyalty in competitive on-line environment. Firm's understanding on how different consumers perceive the e-services provided by them are important to design and develop their online services (Nilwala, W., Sanjeeva, W., 2016). The digitalization of the insurance industry presents a double-edged sword, offering numerous benefits and challenges. Digitization is poised to revolutionize the insurance business model and value chain. To stay ahead of the curve, insurance companies must develop a tailored digitization strategy that addresses their unique needs and goals. Since digital insurance solutions vary significantly from one company to another, a one-size-fits-all approach won't suffice. Instead, insurers must embark on a customized digital transformation journey that aligns with their distinct vision, objectives, and customer expectations (Kalarani, B. J. P., Priya, N.P., 2019).

3. OBJECTIVES OF THE STUDY

1. To measure customer experience and satisfaction with digital insurance services
2. To investigate factors impacting the adoption of digital insurance platforms

Hypothesis

H1: Digital insurance services have a positive impact on customer satisfaction

H2: The adoption of digital insurance platforms is expected to have a profound impact on customer

4. RESEARCH METHODOLOGY

Descriptive research method is designed for measuring the customer satisfaction towards e- insurance account. To achieve the objective the main source of this research paper is based on the primary data. Data are collected through a structured, self-administered questionnaire based on convenience sampling method of 200 respondents where the questionnaire was distributed to 250 respondents of Uttarakhand. The response of the customers was taken on a five-point Likert Scale with response varying on the scale of 5 for strongly agree and 1 for strongly disagree. This study used Structural Equation Modelling (SEM) to analyze the relationship between digital insurance and customer satisfaction, identifying key factors and their structural relationships.

Conceptual Framework

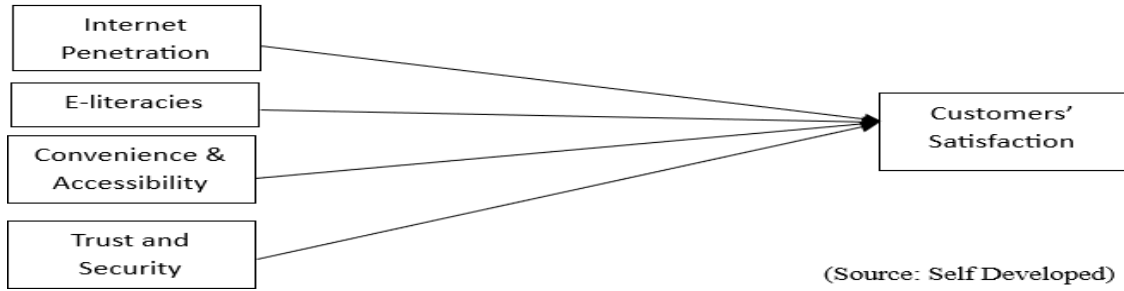


FIGURE 1.

The conceptual framework for examining the impact of e-insurance on customer satisfaction includes internet penetration, e-literacies, convenience and accessibility, trust and security as an independent variable and customer satisfaction as a dependent variable. This framework suggest that e-insurance can positively impact customer satisfaction through various factors. By understanding these factors, insurance companies can optimize their e-insurance services to enhance customer satisfaction and loyalty.

5. RESULTS AND ANALYSIS

Table 1. Construct reliability and validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Convenience & Accessibility	0.895	0.980	0.932	0.820
Customers' Satisfaction	0.985	0.986	0.989	0.957
E-Literacy	0.965	0.982	0.977	0.934
Internet Penetration	0.992	0.992	0.996	0.992
Trust & Security	0.866	1.250	0.930	0.869

The reliability analysis of the measurement model was assessed using Cronbach's alpha for internal consistency and composite reliability (Table 1). This analysis evaluates the consistency and stability of the instrument. Although a composite reliability above 0.6 allows for an acceptable Average Variance Extracted (AVE) value below 0.5, ensuring satisfactory convergent validity (Fornell & Larcker, 1981), discriminant validity is also crucial. Discriminant validity, which assesses the distinctness of variables, is essential to prevent overly strong correlations between measures of different concepts (Bagozzi et al., 1991). To establish discriminant validity, this study employed three methods: the Fornell-Larcker criterion, cross-loadings, and the Heterotrait-Monotrait ratio.

TABLE 2. Fornell and Larcker criterion

	Convenience & Accessibility	Customers' Satisfaction	E- Literacy	Internet Penetration	Trust & Security
Convenience & Accessibility	0.906				
Customers' Satisfaction	0.104	0.978			
E-Literacy	0.120	0.120	0.967		
Internet Penetration	0.121	0.757	0.160	0.996	
Trust & Security	0.969	0.102	0.115	0.124	0.932

The Fornell-Larcker criterion assesses discriminant validity by comparing the square root of the average variance extracted (AVE) with inter-construct correlations with all other constructs in the study (Table 2).

TABLE 3. Cross loadings

	Convenience & Accessibility	Customers' Satisfaction	E-Literacy	Internet Penetration	Trust & Security
CA1	0.892	0.089	0.109	0.097	0.752
CA2	0.927	0.116	0.107	0.143	0.976
CA3	0.897	0.055	0.113	0.062	0.886
CS1	0.121	0.989	0.132	0.762	0.121
CS2	0.112	0.966	0.122	0.763	0.113
CS3	0.121	0.983	0.101	0.723	0.118
CS4	0.048	0.975	0.113	0.712	0.044
EL1	0.134	0.115	0.982	0.157	0.129
EL2	0.115	0.099	0.955	0.136	0.110
EL3	0.100	0.130	0.962	0.167	0.096
IP1	0.118	0.746	0.155	0.996	0.121
IP2	0.123	0.762	0.163	0.996	0.125
TS1	0.927	0.116	0.107	0.143	0.976
TS2	0.897	0.055	0.113	0.062	0.886

Cross-loadings provide insight into whether an item loads more strongly on its intended construct than on other constructs. Discriminant validity is demonstrated when an indicator's loading on its underlying construct is significantly higher than its loadings on other research constructs. As shown in Table 3, the cross-loadings analysis reveals that each indicator's loading on its respective construct exceeds its loadings on all other constructs, thus establishing discriminant validity.

a) Heterotrait-Monotrait Ratio

Table 4: Heterotrait-Monotrait Ratio

	Convenience & Accessibility	Customers' Satisfaction	E-Literacy	Internet Penetration
Convenience & Accessibility				
Customers' Satisfaction	0.101			
E-Literacy	0.130	0.121		
Internet Penetration	0.118	0.765	0.162	
Trust & Security	1.105	0.098	0.128	0.118

This study employs the Heterotrait-Monotrait (HTMT) ratio to evaluate discriminant validity. Following Henseler et al. (2015), discriminant validity is established when the HTMT value is less than 0.85. As presented in Table 4, The HTMT ratio analysis revealed that the correlation between trust & security and convenience & accessibility (1.105) exceeded the recommended threshold of 0.85. This suggests a lack of discriminant validity between these two variables, indicating that they may be measuring similar constructs. Further investigation is needed to determine the nature of this relationship and to consider alternative measures or indicators that can capture the unique aspects of each construct.

6. ANALYSIS

The structural model was checked using Structural Equation Modelling (SEM) in Smart PLS. 4.0 before computing the path coefficient. Therefore, the measurement model evaluations with their various results are summarised below.

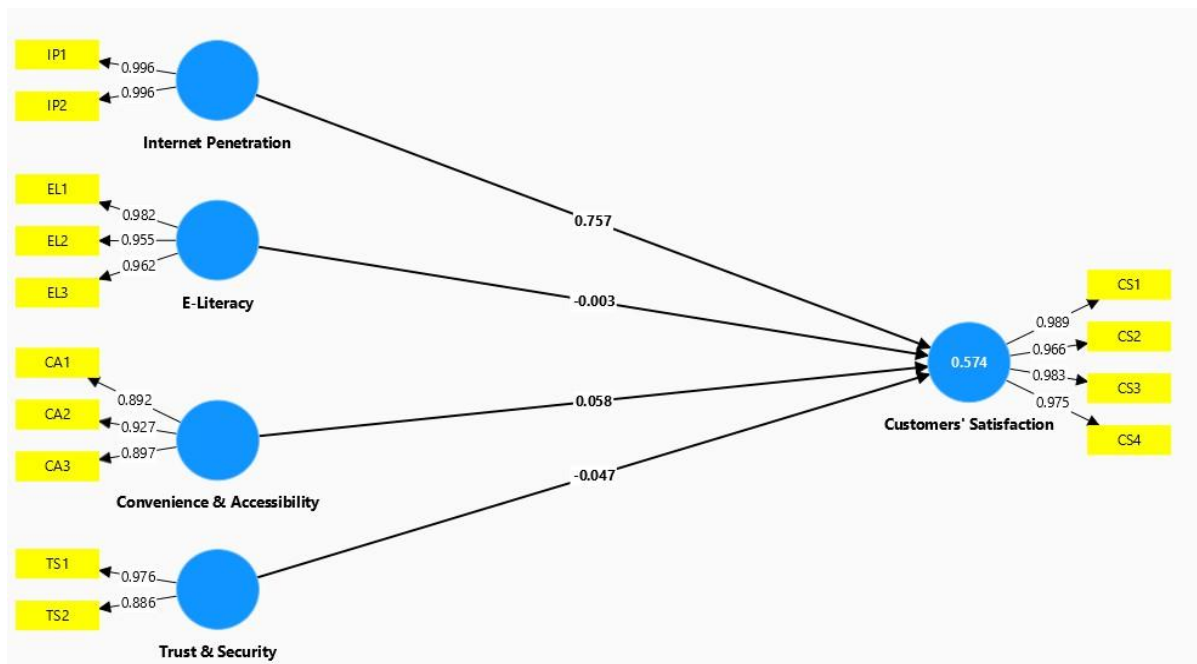


FIGURE 2. Structural Model (Source: Smart PLS 4)

In PLS-SEM, outer loadings represent the relationships between the indicators (internet penetration, e-literacy, convenience & accessibility, trust & security) and their corresponding constructs (customer satisfaction). Since, the outer loading value of is greater than 0.7, it indicates a strong relationship between digital transformation in insurance services and customer satisfaction.

7. FINDINGS AND SUGGESTIONS

The implementation of digital insurance services has yielded a significant uptick in customer satisfaction. A key driver of this trend is the convenience and accessibility afforded by digital platforms, which enable customers to manage their policies and access support services effortlessly. Moreover, the provision of robust security measures and transparent communication fosters trust and reinforces customer satisfaction. Personalization also emerges as a critical factor, with tailored recommendations and customized services catalyzing heightened satisfaction levels. Interestingly, demographic analysis reveals that younger, more educated customers exhibit disproportionately higher satisfaction rates, underscoring the importance of targeted service delivery. To enhance customer satisfaction, insurers should prioritize optimizing the user experience of their digital platforms, focusing on intuitive navigation, clear communication, and seamless transaction processing. Investing in robust security measures, including encryption, firewalls, and regular audits, is also crucial to safeguard customer data and foster trust. Furthermore, insurers can leverage data analytics and AI to personalize services, offering tailored recommendations and customized solutions that cater to individual customer needs. Educating customers about the benefits and risks of digital insurance services through dedicated digital literacy programs can also empower informed decision-making and enhance satisfaction. Ultimately, insurers must continuously monitor customer satisfaction, gathering feedback and adapting services to meet evolving needs and preferences, ensuring a customer-centric approach in the digital landscape.

8. CONCLUSION

The study's findings underscore the transformative power of digital insurance services in redefining customer satisfaction. By embracing digital innovation, insurers can enhance customer experience, drive business growth, improve operational efficiency, and establish a sustainable competitive advantage. As the insurance industry continues to navigate digital transformation, insurers must prioritize customer-centricity, invest in digital literacy programs, and foster a culture of innovation to remain relevant and competitive. This research highlights the critical importance of digital insurance services in meeting evolving customer needs and expectations. To capitalize on this potential, insurers must adopt a customer-centric approach, leverage data analytics and AI, and continuously monitor and adapt to changing customer needs and preferences. By doing so, insurers can drive business growth, improve operational efficiency, and establish a competitive edge in an increasingly digitized marketplace. The study's results demonstrate that digital insurance services can revolutionize the insurance

industry by providing customers with convenient, personalized, and secure experiences. Insurers must prioritize digital transformation, invest in emerging technologies, and cultivate robust relationships with customers to drive business growth and establish a sustainable competitive advantage.

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