

# TECHNOLOGY READINESS OF INSURANCE SERVICES: A CASE STUDY OF NEPAL

Sushant Subedi, Aayush Dip Giri, Saugat Adhikari and Sushil Shrestha  
*Kathmandu University, Dhulikhel, Nepal*

## ABSTRACT

Technology infrastructure plays a crucial role in determining the readiness of E-services in any organization. The rapid evolution of technology and the diversification of customers have made it increasingly important to research the appropriate services and technologies to implement. This research paper examines the technology readiness of insurance companies in Nepal in relation to the growing expectations of customers. Insurance companies are inherently risky businesses for customers to trust. To gain the trust of customers and sustain the insurance business, it is necessary to plan and improve the quality of services. Once customers are willing to accept the services provided by these insurance companies and the right technologies are implemented for different services, it can ensure the technological readiness of insurance companies. The Technology Acceptance Model (TAM) is used to analyze the readiness of customers using current online services provided by insurance companies. A survey-based analysis helped in mapping the technological infrastructure readiness of insurance companies in relation to the services provided to customers. Five different domains of technical infrastructure have been used to analyze the readiness of insurance companies in Nepal, i.e., Infrastructure, DBMS, Applications Assessment Criteria, ICT Management, and Technical Skills. The findings of this research suggest that customers using insurance online services in Nepal trust the technologies and believe that using such services will enhance their daily experiences. However, the technological infrastructure implemented for providing quality service in the future is not sufficient. To be technically ready, it is necessary to constantly access customers' experiences and expectations to increase the capacity and implementation of technological infrastructure. This study can be beneficial to E-Governance practitioners, IT officers of insurance companies, and researchers of E-Governance.

## KEYWORDS

E-Governance, E-Readiness, Insurance, Technology Acceptance Model (TAM)

## 1. INTRODUCTION

E-government (short for electronic government) uses technological communications devices, such as computers and the Internet, to provide public services to citizens and other persons in a country or region. The e-government's ultimate objective is to offer an enhanced portfolio of public services efficiently and cost-effectively to citizens (Ao-Itc, 2019). E-Governance has always been one of the primary focuses of developing countries like the Democratic Republic of Nepal. E-governance's main application is developing all the sectors using (Information and Communication Technology) ICT to enhance better relationships between people, government, and businesses. We can see the emerging growth of ICT applications in health, education, insurance, etc. This paper discusses the readiness of the insurance sector to use ICT technology.

A vital prerequisite for successful economic development is a strong and functional insurance sector (Outreville, 1990). Insurance is a critical component of any economy, providing financial protection against unforeseen events such as accidents, illnesses, and natural disasters. Nepal, a developing country in South Asia, is no exception. However, insurance penetration in Nepal is relatively low compared to other countries in the region, with only 27 percent of the population currently insured (Republic, 2021). The objective of insurance is to provide financial security to individuals, organizations, and businesses. E-insurance, which can be broadly defined as the utilization of the Internet and Information Technologies (IT) for the production and delivery of insurance services, can be further characterized as the provision of insurance coverage through an online mechanism, including the offer, negotiation, and execution of insurance policies. While it is possible for payment, policy issuance, and claim processing to be conducted electronically, certain

technical and legislative constraints may impede the full implementation of e-commerce in certain jurisdictions. (Sanayei et al., 2009).

Prior research investigating the e-readiness of the insurance sector in Nepal is non-existent. However, the insurance industry in Nepal is experiencing a significant annual growth rate of 16.48% (Dhungana, 2022), indicating that it is an emerging market. As such, there is a need for research to examine the utilization of Information and Communication Technologies (ICT) within the insurance sector. This research aims to provide an overview of the technological readiness of insurance scenario in Nepal. The study aims to shed light on the potential for growth of technological improvement for facilitating e-Services in Insurance sector for Nepal with two major objective.

**RQ1.** Are customers ready to accept the services provided by the technologies implemented by Insurance Companies?

**RQ2.** Are insurance companies fully ready to implement E-Services with the existing technologies?

This paper is divided into two major section for readers to comprehend our work. The first section checks the e-readiness of the insurance and the second section accesses the technological infrastructure.

## **2. LITERATURE REVIEW**

The establishment of e-government readiness is a multifaceted endeavor that cannot be accomplished solely by government organizations. The e-government readiness index is influenced by a variety of dimensions, including user perceptions, institutional frameworks and strategies, human resources, financial resources, interdepartmental cooperation, national infrastructure, economic prosperity, public education, information policies, private sector development, and other factors related to e-government readiness (Omari et al., 2006). While a plethora of readiness assessment tools are readily available to the public, there is a lack of clear guidance on how to utilize these tools as frameworks for conducting assessments in specific contexts, such as the development or implementation of e-government.

### **2.1 Component Based Framework**

Previous research has identified a variety of tools that have been used to evaluate the readiness of countries for e-government services, including the UNDESA e-Government Survey, the Brown University Global e-Government, the Accenture e-Government Leadership, the WU-IEGOV e-Government Ranking, and the UNU e-Readiness Assessment (Shareef et al., 2008). In order for these frameworks to be effective, a well-coordinated set of policies and strategies is crucial for directing the development of regulatory frameworks, organizational and technical infrastructures, and necessary information systems. Despite the availability of these tools, there is a lack of clear guidelines and parameters for utilizing them in the assessment of e-government readiness during implementation (Omari et al., 2006; Shareef et al., 2008). A component-based framework, which involves evaluating eight distinct components to determine readiness, has been implemented in the Maldives and has been found to provide the necessary information for specific planning contexts (Shareef et al., 2008).

### **2.2 Importance of Technology in Adopting Online Services**

E-Governance is defined as the utilization of electronic means to streamline and enhance democratic, governmental, and commercial aspects of governance through interactions between government and citizens, government and businesses, as well as within government processes (Backus, 2001). Every individual in every country expects their government to produce and provide high-quality services; such demands put pressure on the government to deliver quality services. As a result, several initiatives for e-governance implementation are the outcome of citizen pressures and expectations combined with the capabilities attained through the use of Information and Communication Technology (ICT) (Agrawal, 2007). Research has also shown that ICT's e-Readiness increases the level of service and public trust, thus its adoption has become a crucial tool for the government to develop policies and procedures (Gumilang et al., 2019).

## **2.3 Trust vs. Readiness of Insurance Company**

The insurance industry is inherently risky, as the difference between expected and actual losses is a fundamental concept in risk insurance theory (Green et al., 2004; Reigel et al., 2004; Rejda, 2005). Insurance companies base their premium rates on evaluating typical projected losses and damage. An insurer must undertake several fundamental actions in order to ensure a risk against a specific cause of injury, such as determining the premium rate (for instance, when insuring homes or cars against fire or theft) and setting up sufficient reserves to offset variations from typical, anticipated losses. Additionally, the insurer must decide how to adjust the prices it proposes to each client and determine whether any particular clients are likely to have worse claims than usual. The processing of policies, premium notices, market analysis, sales predictions, and bookkeeping are all frequently handled by technological infrastructures. Insurance is an information-intensive industry, making it suitable for e-commerce businesses (Sanayei et al., 2009).

To assess the readiness of E-Services in organizations, several dimensions play an important role. In the current technological era, a crucial factor in the successful implementation of services revolves around implementing technologies to provide quality services to customers by earning their trust in the technologies. Several studies have identified different methods for evaluating E-readiness assessments.

However, only a limited number of studies suggest a theoretical framework for assessing technology readiness. Technical readiness can be evaluated by understanding how well the services align with the technological implementation concerning customers' expectations. A similar gap in the research world allows us to assess the readiness of insurance companies with technological infrastructure concerning customer expectations.

## **3. METHODOLOGY**

### **3.1 Survey Measures**

This study employed a qualitative approach to evaluate the readiness of users to utilize different services within the insurance industry. The Technology Acceptance Model (TAM) served as the theoretical framework for the analysis. A survey questionnaire was developed to assess user readiness and was divided into two sections: one for individuals who had not previously used online insurance services and another for those who had. The survey included eight questions designed to measure three primary factors: perceived ease of use (measured by three questions), perceived usefulness (measured by two questions), and privacy and security concerns (measured by three questions). The survey index ranged from "Extremely Likely" to "Extremely Unlikely".

In addition to the survey, a sample of ten individuals from among the survey respondents who held insurance policies was further interviewed to gain deeper insight into the technological readiness of insurance companies. The interviews explored the respondents' experiences using online services across five dimensions of the ICT framework: Infrastructure, Database Management Systems, Application assessment criteria, ICT management, and Technical skills (as described by Aqeel, 2014). The interviewees were asked open-ended questions about their experiences with online services in relation to various insurance-related tasks.

#### **3.1.1 Survey Methodology**

The total sample size for this survey was determined to be  $n=56$ . The survey instrument was designed using Google Forms and distributed among the researcher's peers and family through social media platforms.

### 3.1.2 Data Collection and Analysis

For the initial data collection, a snowball sampling methodology was employed, taking into account the fact that only 25% of the population in Nepal holds insurance (Republica, 2021). The survey respondents were informed that the collected data would be used solely for research purposes, and only those respondents who consented to participate were included in the data analysis. The mean was calculated for each question to determine the most likely response. Additionally, box plots were generated for each question to assess the skewness of the data. Finally, the standard deviation was calculated to provide a measure of the distribution of responses across all questions.

## 4. RESULT

The survey yielded a total of 56 responses. Of the respondents, 78.6% belonged to the age group of 18-25, 7.1% to the age group of 26-30, and 14.3% belonged to the age group of 35 and above. The survey participants were also asked to identify their gender, 58.9% of the respondents identified as male, and 41.1% identified as female. In terms of insurance coverage, 62.5% (n=35) of the respondents reported having insurance, while 37.5% (n=21) reported not having any insurance policy.

Of those who reported having insurance, 75% (n=27) had life insurance, while 25% (n=9) had non-life insurance. Among those with life insurance, 22.2% had insurance with Rastriya Beema Sansthan, 18.5% had insurance with National Life Insurance, 7.4% had insurance with Union Life Insurance, Reliance Life, Citizen Life Insurance, and Metlife Insurance respectively, 11.1% with Prabhu Life Insurance and Life Insurance Corporation each, and 3.7% with Sun Life Insurance and Jyoti Life Insurance each. Among the respondents who had non-life insurance, 33.3% were affiliated with Ajod Life Insurance, 22.2% with Prabhu Life Insurance, Nepal Health Board Insurance, and Nepal Insurance Company Ltd with 11.1% respectively, and 22.2% were not sure of their insurance policy.

Regarding the use of online services, 72.7% of the respondents reported not having used online services, while 27.3% reported having used such services. The Cronbach Alpha Value which measures the internal consistency of the data was found to be  $\alpha = 0.89$  for the eight survey questions that were calculated using the insurer data (n=37). The mean and variance of the results of the questions are displayed in Figure 1.

Technology Acceptance Model Questions	Mean	Variance
Using Insurance online services in my daily life would enable me to accomplish tasks more quickly.	2.54	4.40
Using Insurance online services would enhance my effectiveness while accessing my insurance services.	2.55	2.94
I would find insurance online services useful in my daily life.	2.43	2.93
Learning to operate Insurance online services would be easy for me.	2.33	3.03
I would find it easy to get insurance online services to do what I want it to do.	2.50	2.29
I trust in the technology an online service is using.	2.37	1.78
I trust in the ability of online services to protect my privacy.	2.37	1.63
I find using insurance online services financially secure.	2.53	1.21

Figure 1. Mean and Variance Calculation of TAM questions

Figure 1 suggest us that the data obtained from the last 3 questions are less scattered as compared to first 5 questions. Most the respondents have similar thought process due to which they have similar opinion on survey questions.

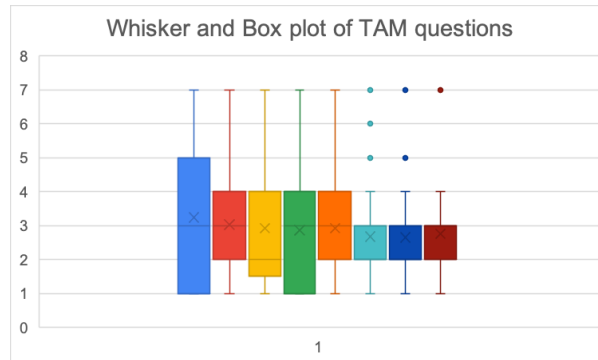


Figure 2. Whisker and Box plot of TAM questions

Based on the responses of 10 participants, the study found that the implementation of various technological dimensions within the context of e-insurance services is illustrated in Figure 3.

Technological Infrastructure	Checklist
<b>Infrastrucrture</b>	
Hardware	<input checked="" type="checkbox"/>
Communication Network	<input type="checkbox"/>
ICT Facility	<input checked="" type="checkbox"/>
<b>DBMS</b>	<input checked="" type="checkbox"/>
<b>Applications Assement Criteris</b>	
Application functional maturity	<input type="checkbox"/>
Application integration ability	<input type="checkbox"/>
Application Security	<input type="checkbox"/>
<b>ICT Management</b>	
Effectiveness	<input type="checkbox"/>
Efficiency	<input type="checkbox"/>
Confidentiality	<input checked="" type="checkbox"/>
Integrity	<input checked="" type="checkbox"/>
Avaiability	<input type="checkbox"/>
Reliability	<input type="checkbox"/>
Compliancy	<input type="checkbox"/>
<b>Technical Skills</b>	
Level of Maturity of ICT function	<input type="checkbox"/>
E-Governance Strategic Plan	<input checked="" type="checkbox"/>
Approaches to gain new skills and abilities	<input type="checkbox"/>

Figure 3. Technology Infrastructure Checklist

The study employed a technological infrastructure checklist that assesses five different dimensions of technology implementation. These dimensions includes Infrastructure, Database Management Systems, Application Assessment Criteria, ICT Management, and Technical Skills.

## 5. DISCUSSION AND FINDING

This study aimed to analyze the readiness of E-Insurance services in Nepal through the use of the Technology Acceptance Model (TAM) and Technology Assessment. The results obtained from the TAM questions revealed that the general public is generally ready to accept and trust the ICT infrastructure in the insurance industry, as evidenced by the mean and variance of responses on the security and privacy factors, which were approximately 2.5 and 1.4 respectively. However, the technological infrastructure in Nepal's insurance sector appears to be lacking in certain areas. Specifically, none of the sub-structures in the application assessment criteria checklist were implemented, and only 2 out of 7 sub-structures in the ICT management checklist were implemented and ready for use. This suggests that while users may be ready to accept the technology, the infrastructure itself may not be fully prepared to deliver the necessary services. Additionally, it was found that only 27.9% of respondents had used online services, indicating a significant portion of the population may not be aware of these services or lack the technical skills necessary to utilize them.

Furthermore, the calculated  $\alpha$  value of 0.89 suggests that the survey results were consistent with each other and may be generalizable to a larger population. However, future studies could benefit from utilizing the Nepal Stock Exchange (NEPSE) index to investigate investment behavior in the insurance sector, and comparing the results obtained from this survey to investigate the level of trust the public has in the insurance sector in Nepal.

It is important to note that the survey implemented in this study was conducted among individuals in the Kathmandu Valley, and primarily targeted the younger age group (18-25 years) which accounted for 78.6% of the sample. Future research should aim to include a more diverse age group and individuals from different regions of the country.

## 6. CONCLUSION

In this study, the e-readiness of the insurance industry in Nepal is assessed by utilizing the results from Technology Acceptance Model (TAM) and interview questions. The findings reveal that the insurance sector in Nepal is lacking in the management and integration of Information and Communication Technology (ICT) facilities, despite the availability of infrastructure. Additionally, the survey results indicate that the general public who currently use online services is ready to adapt to digital change, even if the industry is not yet mature in terms of e-readiness. However, a significant gap is observed among individuals who do not currently use the online services of insurance companies. It is important to note that in today's digital age, providing fast and accurate information services to users requires the observation of e-readiness indicators. Therefore, it is the responsibility of the insurance industry in Nepal to access these indicators and take appropriate action. By assessing the readiness of customers who use online services and mapping their focus on technology implementation, insurance companies can increase their own e-readiness. This study may be beneficial for researchers, practitioners of e-governance, and IT officers of insurance companies.

## REFERENCES

- Ao-Itc. (2019, October 2). *What is e-government and why it is important?* Gräbner Omahna IT Consulting.
- Aqel (2014.). *Toward an organizational e-readiness model*. Share and Discover Knowledge on SlideShare.
- Agarwal, A., & Ramana, V. V. (2008). EGOSQ – Users' Assessment of e- Governance Online-Services: A Quality Measurement Instrumentation. In *Foundations of e-government*. Essay, GIFT Publishing, Global Institute of Flexible Systems Management.
- Dhungana, R. (2022, September 7). *Current status of insurance business in Nepal*. Instapaper.
- Gumilang, S. F. S., Nugroho, H., Lubis, M., & Jacob, D. W. (2019). *E-Government Readiness Model Development for Successful ICT Adoption at Government Institutions in Indonesia*. DlineInfo

- Green, M. R., & Treischmann J. S. (2004). Risk & insurance (6th ed.)
- Omari, A., & Hussein, H. A. (2006, November). *E-Government Readiness Assessment Model*. Research Gate.
- Republica. (2021, September 1). *Nepal's 25 PC population has access to insurance*. My Republica.
- Shareef, M., Ojo, A., & Janowski, T. (2008).
- A readiness assessment framework for e-government planning: design and application. *ICEGOV '08: Proceedings of the 2nd International Conference on Theory and Practice of Electronic Governance*, 403–410.
- Sanayei, A., & Torkestani, M. S. (2009).
- Readiness Assessment of Iran's Insurance Industry for E-Commerce and E-Insurance Success. *International Journal of Information Science and Management*, 7.