

FACTORS INFLUENCING TECHNOLOGICAL ADOPTION IN THE SLOVAK INSURANCE MARKET¹

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Abstract: *The global insurance sector has undergone significant transformation due to the widespread integration of digital technologies. E-insurance, which involves the provision of insurance and related financial services through digital platforms, represents a significant advancement in this context. Digital innovation has not only increased profits to insurance companies but also facilitated the development of effective business strategies, enhancing their market share. The objective of this analysis is to uncover the determinants influencing the adoption of innovative technological solutions in the Slovak insurance landscape between 2011 and 2021. Utilizing the Technology-Organization-Environment (TOE) framework, the study categorizes the factors affecting the incorporation of IT in e-insurance into three groups: technological, organizational, and environmental. The findings reveal that the environmental factor exerts the most substantial influence on technological adoption in insurance market. Moreover, the study highlights the ample opportunities for insurance companies in the Slovak market to enhance their position through digitalization. Particularly noteworthy is the positive impact of an insurance company's market share on the likelihood of e-insurance adoption.*

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1 Introduction

The advent of digital technologies has revolutionized the private sector, providing new opportunities for product and service distribution as well as the creation of innovative products and services. Digital transformation refers to the use of technology to build new strategies, processes, software, and systems that result in increased profitability, enhanced competitive advantage, and greater efficiency. By leveraging digital technologies, companies can achieve greater profitability and cost reduction, resulting in sustainable business growth.

Researchers have delved into the relationship between Information and Communication Technology (ICT) and economic development, with various studies shedding light on this connection (Pradhan and Sahoo, 2020). Conversely, there are studies indicating that financial inclusion stimulates improvements in ICT infrastructure. Historical studies exploring the connection between Information and Communication Technology (ICT) and financial development have predominantly centered on banking and financial market dimensions. Strikingly, the insurance sector, despite its significant role in developed economies, has been notably absent in these analyses. This absence can be attributed to the gradual digitization of traditional insurance, a point highlighted by Cappiello (2018). However, once the insurance sector embraced digital technologies, it sparked a profound transformation across the entire industry (Njegomir, Demko-Rihter and Bojanić, 2021).

As per Cappiello (2018), the sector of insurance most profoundly impacted by ICT development is sales and distribution. Notably, the significant implication of ICT in insurance distribution lies in online sales conducted through websites, applications, or various social media platforms during the acquisition process.

Digital business transformation is often conceptualized as a multifaceted process consisting of several elements. Kane et al. (2015) suggest that there are seven key elements of digital business transformation, including the business model, organizational structure, digital skills of employees, digitization of business processes, IT infrastructure, digitization of products and services, and digital channels for interaction with clients. These elements are interdependent and require careful consideration and planning in order to achieve successful digital transformation. By focusing on each of these elements, companies can leverage digital technologies to transform their businesses and gain a competitive advantage in the digital economy.

In the insurance sector, digital solutions have primarily been implemented to improve communication between insurance companies and their clients, enable online reporting of claims, and facilitate online insurance contract negotiations. One of the most significant impacts of digitalization in the insurance industry is the development of new insurance products that provide better protection for consumers while also reducing costs for insurance companies. By leveraging digital technologies, insurance companies can enhance their product portfolios, improve customer experience, and reduce operational costs. This, in turn, can help insurance companies achieve a competitive advantage in the market.

The insurance industry has some significant specifics in comparison with other industries using technological adoption. Insurance companies must be predictable not just in sales activities but also in claims reporting, as well as fraudulent claims reporting, determining insurance premiums paid by consumers and more. The insurance sector has to consider many specific factors as, for instance, regulatory requirements, data protection and GDPR rules, which impact the level of digitalization and represent a burden to insurance companies. In literature reviews, it is written it is a lack of innovation in insurance industries (Wiesbock, 2017) and many processes must be reviewed and innovated (Foroughi & Bennett, 2012).

Eckert, Eckert and Zitzmann (2021) conducted an analysis on the factors influencing the adoption of digital technologies in insurance sales through various intermediaries: exclusive agents, independent agents, and independent brokers. Their study, carried out through a questionnaire administered to professionals operating in the German insurance market after the initial wave of COVID-19, revealed that the utilization of digital technologies in insurance sales is relatively limited. The survey findings indicated that approximately 50% to 60% of sales units employ technology for customer interactions during the sales process. Among the digital tools used, messenger services were the most prevalent, followed closely by video meetings.

Many insurance companies have incorporated chatbots or robo-advisors into their customer interactions to gather data on clients' needs. This data is then utilized to personalize their products and services, offering tailored advice on selecting insurance policies that align with customers' requirements and financial situations. Insurers are increasingly employing video calls and phone conversations, leveraging image and video processing, to analyze emotions.

This analysis aids in generating new models used in product design (Albrecher et al., 2019). Additionally, the use of ICT has significantly impacted the insurance claim management process. Employing digital technologies for filing insurance claims not only enhances company efficiency but also elevates the overall customer experience. Through the utilization of Big Data and predictive analytics (Njegomir, Demko-Rihter and Bojanić, 2021), insurers can refine the claims process and proactively prevent insurance fraud.

In this study, the objective of this analysis is to identify the factors that influence technological adoption in Slovak insurance market. The study builds upon existing literature on insurance markets and digitalization, which was realized in analyzing database of annual reports of insurance company in Republic of Serbia (Stanković, Stanković and Tomić, 2022).

In the further part of the paper, the main trends, and challenges of adoption of the e-insurance are discussed, and the level of technological adoption of insurance in the Slovak Republic is assessed. The third part describes the research framework used in this study, which applies the TOE frameworks to identify the factors that affect technological adoption in the Slovak insurance market. The results are presented in the fourth part, and the conclusion and discussion are provided in the fifth chapter.

2 Innovation and digitalization in insurance market

Digital Transformation has emerged as a critical topic for practitioners and researchers alike, with a growing focus on its impact on information systems and business strategies. At the industry level, digital transformation represents a fundamental shift that is transforming the way organizations compete within and across industries. As noted by Freitas Junior et al. (2020), digital transformation affects large parts of companies and extends beyond their borders, impacting products, business processes, sales channels, and supply chains. This phenomenon has profound implications for businesses, as they must adapt to the new digital landscape to remain competitive. As such, digital transformation has become a key area of focus for organizations seeking to leverage digital technologies to enhance their operational efficiency, improve customer experience, and drive innovation.

Berman (2012) emphasizes that achieving successful digital transformation entails redefining customer value propositions and overhauling operations using digital technologies. This approach aims to enhance customer interaction and collaboration. Additionally, Henriette et al. (2015) underscores the significance of a comprehensive organizational transformation. Digital transformation, whether disruptive or incremental, initiates by adopting and integrating digital technologies into various aspects of the organization.

The conventional players in the insurance industry have recognized the significance of digitizing their operations and the need to revamp their organizational structure to meet the demands of technology-savvy consumers. Within the European Union, e-commerce constitutes approximately 14% of total sales across all sectors, whereas the average for insurance purchases is less than 5%, as per Swiss Re (2014) findings.

Similar to various other sectors, the insurance industry has undergone significant changes owing to ICT advancements. However, this interaction is not unidirectional; the digitalized insurance sector can also influence the development of ICT, as stated by Pradhan and Sahoo (2020). Hence, a mutual interaction between ICT indicators and the development of the insurance sector is theoretically anticipated.

Digital transformation means changing the manner in which a value is delivered to customers, which is also observable in the insurance industry. Digital transformation cannot be implemented without an appropriate strategy (Bharadwaj et al., 2013). Insurance companies' digitalization strategy should maintain the balance between efficiency and cost optimization, on the one hand, and growth and revenue levers on the other. The main issues that should be considered by the digital transformation strategy are the maturity of implemented IT, influence on the created value, structural changes in organization and costs of IT implementation (Matt, Hess and Benlian, 2015).

The study analyzed the online presence of 17 insurance companies in the Slovak insurance market from 2011 to 2021, with a focus on their adoption of e-business. The results, as shown in Table 1, indicate a significant growth in e-business in the insurance sector during the observed period. All the insurance companies had their own websites and email addresses in 2021, with larger market share companies having online distribution channels. Around 76.4% of the observed insurance companies had online claim reporting systems, while 70.5% had the option to sell their insurance products online. Approximately

58.88% of the insurance companies had an app for customers to communicate with them, indicating a modern approach to technology adoption. Only one insurance company did not have social media (Partners poisťovňa - which obtained licence in 2018), but it was not significant in the observations. The study concludes that Slovak insurance companies are mostly communicating via social media, particularly Facebook.

Table 1: Service provided online by insurance companies in Slovak republic in 2022

Insurance Company	E-mail	Website	Social media	App	Online Sale	Claim
Allianz - Slovenská poisťovňa, a.s.	*	*	*	*	*	*
BNP Paribas Cardif Poisťovňa, a.s.	*	*	*	*	*	*
ČSOB Poisťovňa, a.s.	*	*	*	*	*	*
KOMUNÁLNA poisťovňa, a.s. Vienna Insurance Group	*	*	*		*	*
KOOPERATIVA poisťovňa, a.s. Vienna Insurance Group	*	*	*	*	*	*
NN Životná poisťovňa, a.s.	*	*	*			*
NOVIS Insurance Company, NOVIS Versicherungsgesellschaft, NOVIS Compagnia di Assicurazioni, NOVIS Poisťovňa a.s.	*	*	*			
PARTNERS poisťovňa, a.s. (from 2018)	*	*				*
Union poisťovňa, a. s.	*	*	*	*	*	*
Wüstenrot poisťovňa, a.s.	*	*	*		*	*
Colonnade Insurance S.A., pobočka poisťovne z iného členského štátu	*	*	*	*	*	*

Compagnie francaise d' assurance pour le commerce extérieur, pobočka poisťovne z iného členského štátu	*	*	*	*	*	
Generali Poisťovňa, pobočka poisťovne z iného členského štátu	*	*	*	*	*	*
HDI Versicherung AG pobočka poisťovne z iného členského štátu		*		*		
MetLife Europe d.a.c., pobočka poisťovne z iného členského štátu	*	*	*	*		

Source: Author's research. (Partner poisťovna obtained a licence in 2018. In slovak insurance market came to mergers and acquisition, in 2021 Uniqa and Axa "digital information" about Axa is not provided).

The results presented in Table 1 indicate a rapid growth in e-business in the Slovak insurance market, with many companies offering online solutions for insurance-related issues. However, it is also apparent that certain insurance companies operating in the market do not offer the option to download and use apps, make online purchases, or report claims online. In the subsequent section of this study, we will focus on a framework that describes technological adoption and various factors that influence the adoption of digital technologies in the Slovak insurance market.

3 Research methodology

The insurance industry is undergoing a significant transformation due to the implementation of new information technology (IT) solutions. This digitalization process is not only being driven by traditional insurance companies but also by Insurtech start-ups, which are leveraging technology to offer new and innovative insurance products to consumers. The Slovak insurance market comprises 28 insurance companies, as shown in Table 1.

Implementation of new IT solutions is a very difficult process as well as measurement of the influenced factors. According to findings of Scupola (2009) they are two levels of adoption – organizational and individual. Implementation of IT depends on the nature of insurance companies' culture, available investments, regulatory requirements as well as factor which are influencing purchase (consumer demands, market shares, IT literacy of consumers and employees) as well as readiness and experience of insurance companies.

In existing literature there are more studies which are trying to explain technological adaption model at micro and macro level. Many empirical studies for example Aggarwal (2022) and Rodriguez (2019) as well as literature recommend using the Technology- organization-environment (TOE) to find out the content of technology that influences innovation adoption.

Technology–organization–environment (TOE) framework is described in Tornatzky and Fleischer's *The Processes of Technological Innovation* (1990). TOE framework is a well-established organizational theory that proposes that adoption decisions are influenced by three key elements of a firm's context. These three elements are the technological context, which refers to the characteristics of the technology itself and its potential impact on the firm's operations; the organizational context, which includes factors such as the firm's structure, culture, and resources; and the environmental context, which encompasses external factors such as market conditions, industry regulations, and competitive pressures. Together, these three elements are believed to shape the firm's attitudes and actions towards technological innovation, ultimately influencing its adoption decisions. By understanding the interplay between these factors, firms can better assess the potential benefits and challenges of adopting new technologies and develop effective strategies to leverage them for competitive advantage.

Many studies reveal that more IT investment and further implementation, the technological development of the enterprise (including insurance companies) contribute to the evolution of e-business. Previous studies indicated several variables of technological and organizational factors that affect e-commerce adoption (Maryeni et al., 2012). Investments in intangible assets and technology development should bring marginal profit to companies. Therefore, the first hypotheses will be stated as follows:

H1: The technological factors do not affect the level of e-insurance adoption.

The technological context of TOE framework in this study will be calculated as a share of software's value in the value of the total asset of the insurance company (S/A).

In the insurance industry, the term "organizational context" refers to various organizational factors within an insurance company that can influence a manager's decision to adopt information technology. These factors may include the company's current technology infrastructure, relevant systems, available human and financial resources, as well as the size of the organization. Based on previous studies, such as Molinnollo et al. (2017) and Chatzoglou et al. (2016) the second hypothesis in this study is stated as follows:

H2: The organizational factors do not affect the level of e-insurance adoption.

For determining organizational factors, more indicators are used. Firstly, financial strength of insurance company will be measured by equity to asset ratio (C/A). As an organizational factor can be determined the profitability of the insurance company would be measured as return on assets ratio (NR/A).

In the third hypothesis in this study, we focus on measuring environmental factors and the third hypotheses is stated:

H3: The environmental factors do not affect the level of e-insurance adoption.

The present literature review offers a conceptualization of environmental factors that are relevant to the analysis of innovation adoption. These factors comprise the structure of the industry, the availability of technology service providers, and the regulatory environment. A range of empirical investigations has explored the impact of industry structure on innovation adoption, revealing that heightened competitive pressures can facilitate innovation adoption (Mansfield, 1968; Mansfield et al., 1977). Additionally, industry leaders positioned within the value chain may influence other actors to pursue innovative practices (Liker et al., 1996). In the context of the insurance industry, environmental factors are seen as driving the demand for suppliers, shaping competitive dynamics, and influencing consumer preferences and needs. Additionally, continuous development of technological support inherently belongs to this sector. For this study, we use market share (MS) as an Environmental factor as Oliveira and Martins (2010) proved in their study, that insurance companies tend to stay competitive and innovative to survive.

The market share will be used as proxy for environmental factors. Market share is defined as a proportion of total insurance premiums within the Slovak republic.

In the field of insurance, there is a limited amount of research available that addresses the challenge of e-insurance adoption specifically in the context of the Slovak Republic. Although some studies have been conducted in other countries, few have focused on this geographic region. Among the existing studies, Pahuja and Chitkara (2016) identified three factors that demonstrate a positive effect on e-insurance adoption. Based on our estimation, we also expect positive effect brought by all three factors, because in last 5 years we can see bigger profits of insurance companies in annual reports of Slovak insurance market.

The current study aims to test the established research hypotheses in the context of the Slovak insurance market, using a sample of insurance companies operating in this geographic region. To obtain the necessary data for the analysis, we retrieved information from annual reports of established insurance companies operating in Slovakia between 2011 and 2021. These data will be described in greater detail in the following chapter, along with an overview of the methodology used for the analysis.

3.1 Data Description

To investigate the impact of various factors on the digitalization of the insurance market, this study employs a theoretical framework based on the Technical-Organization-Environment (TOE). To analyze the impact of these factors on the technological adoption of the insurance market, the study employs a panel-data approach. This approach involves analyzing data from multiple companies over a period to identify trends and patterns. Specifically, the study covers a 10-year period from 2011 to 2021 and includes 17 insurance companies that have been actively operating in the Slovak Republic during this time.

The study observes a total of 170 company-years (observations). The selected insurance companies represent over 75% of the observed insurance market in the Slovak Republic and can, therefore, be considered as a representative sample.

The level of e-insurance adoption is presented by the binary variable EIA that takes two values: where 0 means that the insurance company does not

provide online services and online claim reporting and 1 means that the insurance company provides online service as sale, claim reporting etc. EIA binary variables are calculated by results from Table 2. Further explanation is provided in Table 2. The financial ratios are used to describe each aspect of TOE frameworks. The calculation of financial ratios as well as EIA binary variables are being explained in Table 3.

Considering that measurement units of the selected financial ratios differ, it can affect data analysis, minimum and maximum are being calculated as a control value to find out if the data are not affected. Minimum and maximum function helps us to observe whenever relationship between original data values exists.

Table 2: Explanation of variable used in regression

Name of var.	Meaning	Calculation
EIA	Measuring the level of technological adoption	two values: where 0 means that the insurance company does not provide online services and online claim reporting and 1 means that the insurance company provide online service as sale, claim reporting etc. EIA as a dependent variable is calculated as from Table 1 (Service provided online by insurance companies in Slovak republic in 2022) where a star (*) represents 1 and absence of a sign represents 0.
S/A	share of software's value to total assets	software's value of insurance company/ total assets of the insurance company
C/A	The financial strength - equity to asset	net worth of insurance company/total assets of insurance company
NR/A	Profitability of insurance company return on assets ratio	net income / the total assets
MS	Market share of Slovak insurance companies	market share calculated from annual reports of Slovak insurance association of each year

Source: Author's calculation

Table 3: Calculation based on annual reports of insurance companies in Slovak insurance market

Factor – Variable	Count of observation	Average	Standard deviation	Min.	Max.
E/A	170	0.7849	0.1276	0.0000	1.000
S/A	170	0.4587	0.3415	0.0000	1.000
C/A	170	0.3587	0.2897	0.0000	1.000
NR/A	170	0.1672	0.2189	0.0000	1.000
MS	170	0.1987	0.2207	0.0000	1.000

Source: Author’s Calculation based on annual reports of insurance companies in Slovak insurance market

Stationarity of data was tested by the Panel unit data root of Levin–Lin–Chu (2002), Harris–Tzavalis (1999). Obtained results are being interpreted in Table 3.

Table 4: Result of control testing of stationarity

Test	Statistic	P-value
The Levin–Lin–Chu (2002)	0.911	0.0000
Harris–Tzavalis (1999)	0.694	0.0000

Source: Calculation of author

Based on the analysis presented in Table 3, it can be concluded that the variables exhibit stationarity. To investigate the relationship between the variables of the TOE framework and e-insurance adoption, a regression analysis was performed.

The logistic regression model used in this study estimates the expected value of a dependent variable, $y_i \in \{0, 1\}$, as the probability that it takes the value 1. The model was developed by Stanković, Stanković & Tomić (2022).

$$E(y_i) = 0 \times P(y_i = 0) + 1 \times P(y_i = 1) = P(y_i = 1) \quad (1)$$

Consider a sample of N independently and identically distributed (i.i.d.) observations $i = 1, \dots, N$ of the dependent variable y_i and a $(K+1)$ -dimensional vector x_i' of explanatory variables including a constant. The probability that the dependent variable takes value 1 is modelled using binary response model as

$$P(y_i = 1|x_i) = F(z_i) = F(x_i'\beta) \quad (2)$$

where β is a $(K+1)$ -dimensional column vector of parameters and is $z_i = x_i'\beta$ a single linear index. The function F maps the single index into $[0,1]$ and satisfies in general following conditions: $F(-\infty) = 0$, $F(\infty) = 1$ and $\partial F(z_i)/\partial z > 0$. In the used logistic regression model, the transformation function F is the logistic function. The response probabilities are then

$$P(y_i = 1|x_i) = \frac{e^{x_i'\beta}}{1 + e^{x_i'\beta}} = \frac{1}{1 + e^{-x_i'\beta}} \quad (3)$$

The parameters of β are estimated using the maximum likelihood (ML) method. Assuming independence across observation, the log likelihood function for the logit model is

$$\text{LogL} = \sum_{i=1}^N (1 - y_i) \log(1 - F(z_i)) + y_i \log F(z_i) \quad (4)$$

Maximization of the ML estimator of β is performed by the Newton-Raphson algorithm.

4 Results

We examined multicollinearity by Farrar Gluber test and Variance Inflation Factor test. Those two tests show us that there is no multicollinearity in presented model.

Table 5: Farrar Gluber test and Variance Inflation Factor test

Factor – Variable	Farrar Gluber test	1/ Farrar Gluber	VIF	1/VIF
S/A	27.87	0.0358	1.08287	0.92347
C/A	86.52	0.0115	1.76782	0.56568
NR/A	182.28	0.0054	1.81718	0.55030
MS	17.98	0.0556	1.02892	0.97189

Source: author’s calculation based on Data gathered from Annual Reports of insurance companies in Slovak republic

Table 5 displays the outcomes of the logistic regression, revealing the impact of technological, organizational, and environmental factors on e-insurance adoption. The key findings indicate that organizational and environmental factors have statistically significant influences on the level of e-insurance adoption achieved in the Slovak Republic.

Table 6: Result of logistic regression model

	Coef	St. Error	z	P<z	Exp (β)	95% confidence interval		
						lower	upper	
S/A	-3.921	1.54	1.22	0.08	22.82	0.42	2.1212	
C/A	10.879	4.52	-3.20	0.00	0.00	0.00	0.02	
NR/A	9.29	1.32	1.08	0.00	0.00	0.32	862.28	
MS	82.03	28.93	4.32	0.00	0.0000	0.000	0.000	
Log- likelihood							-27.827	
Cox and Snell R							0.9282	

Source: Calculation of authors

Considering the first hypothesis of our study which is related to the technological context of insurance companies, it was calculated by share of software’s values in the value of the total asset (S/A). The result shows, that it is not statistically significant determinant. It means that investment in software does not significantly affect the presence of e-insurance adoption. Therefore, the hypothesis that technological factor does not affect e- insurance adoption cannot be rejected. We can confirm, that when we calculated the share of

software of the insurance company to total assets of a company, this share in the Slovak insurance market is on average 0.73 % on total asset, which is considered insignificant. The percentage is low and therefore insurance companies should increase the intangible assets of insurance companies. They should implement new strategy, in which the intangible assets will increase, and it also influences the e-insurance adoption.

Next observed variables were organizational factors, which were explained in section 3. As we could see in Table 5, two of three variables of organizational factors as C/A – efficiency of insurance company equity-to asset, NR/A - profitability of insurance company return on assets ratio calculated net income / the total proved to be statistically significant determinants of e-insurance adoption in the Slovak insurance companies. Therefore, we assume that the second hypothesis will be rejected. Profitability of insurance companies affects the level of e-insurance adoption.

The last factor, which we observed, was represented by the environmental factors of technological adoption of insurance companies. This factor was measured by Market share of insurance companies (MS). Based on the result of our data observation, we can confirm that market share of insurance market significantly influences technological adoption. Larger insurance companies have better technological context included in their business model. This hypothesis confirms the study of Oliveira and Martins (2010). Deriving from the result, larger companies operating in the Slovak insurance market have also high level of technological and organizational factors and have all options to communicate with consumers online. On the other hand, smaller insurance companies operating in the Slovak insurance market do not have their system online and e-adoption in those insurance companies is smaller. Therefore, the third hypothesis that the environmental factors do not affect the level of technological adoption will be rejected.

6 Conclusion

The insurance industry has undergone significant transformation due to digitalization and technological advancements. Many insurance companies now consider the adoption of digital technologies as an essential element in their business strategies, aiming to enhance profitability, customer interactions, and market dominance. Despite its importance, the lack of investments in

new IT technologies poses a common challenge for insurance companies. Furthermore, the increasing risk of cyber-attacks poses a significant threat to their operations.

However, amidst these challenges, the emergence of innovative Insurtech companies presents opportunities for traditional insurance companies. By embracing new applications and distribution channels offered by Insurtech, insurance companies can enhance their market position and better reach consumers in innovative ways. This dynamic landscape highlights the industry's ongoing efforts to adapt and thrive in the digital age.

Our research findings indicate a relatively high adoption rate of e-insurance in the Slovak insurance market, with numerous companies investing in digital solutions. However, our study has brought to light a notable gap in basic online services, such as claim reporting and online product sales, among certain insurance companies in the Slovak Republic.

In delving deeper into the TOE analysis of the Slovak insurance market spanning from 2011 to 2021, it becomes evident that environmental factors have wielded substantial influence over the level of e-insurance adoption. This influence is particularly evident in the context of intense competition prevailing among insurance companies in the Slovak Republic. The competitive landscape has driven these companies to embrace new technologies, ensuring their continued relevance and competitiveness in the market. This observation underscores the pivotal role played by environmental dynamics in shaping the digital evolution of the insurance industry in Slovakia.

In terms of the organizational factors, it is interesting to note indicators - equity of assets and return on assets - have a significant influence on the level of technological adoption in the insurance market.

It is crucial to acknowledge the limitations of our study, notably the potential for data manipulation in annual reports by insurance companies. Despite this challenge, our findings underscore the significance of sustained investment in IT development for insurance firms in the Slovak market. Such investments are essential for staying competitive and meeting the evolving demands of consumers in an increasingly digital world.

While the data accuracy issue remains a limitation, our TOE analysis still provides valuable insights into the factors impacting technological adoption

in the Slovak insurance sector. The analysis underscores the imperative for insurance companies to embrace new technologies and educate consumers about the advantages of e-insurance to maintain their competitiveness.

Looking forward, our future research endeavors will focus on acquiring comprehensive data concerning the costs and benefits associated with IT implementation in insurance. Specifically, we intend to delve deeper into the costs involved in IT implementation, examining each insurance company individually. This approach will provide a more nuanced understanding of the challenges and opportunities inherent in adopting IT solutions in the insurance industry.

The insurance sector in the Slovak Republic is encountering multiple challenges, notably regulatory obligations concerning data protection and substantial investments in artificial intelligence that may not yield immediate consumer benefits. Despite these hurdles, a favorable atmosphere has been fostered by the proliferation of mobile devices, widespread internet connectivity, and advancements in non-cash payment systems. Consequently, insurance companies are encouraged to concentrate on harnessing these opportunities and encouraging consumers to adopt e-insurance. By capitalizing on these advancements, the industry can navigate challenges and enhance its services in the digital landscape.

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