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Study of Impact of Digitalization on Insurance Industry in India

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Abstract

The insurance industry is one of the most competitive, and it faces a variety of obstacles. Global firms are increasingly leveraging the power of digital solutions to better understand their customers and increase their effectiveness and minimize their losses as a consequence. Our study also examines how technologies might impact insurers' IT systems. The purpose of this paper is to examine how and to what extent digitalization impact insurance industry. We analyse major digital technologies that are of high strategic importance to insurance companies' digital transformation in this article. Today, customers expect faster and more effective service thanks to digital platforms, mobile apps, and big data. They expect that enhanced level of service right from the moment they buy the insurance policy up until the day they make a claim. Due to the social distancing measures introduced during the ongoing COVID-19 pandemic, many laggards are also becoming early adopters of digital and seeking online solutions. This study will help insurers to take a calculative transformation and adopt of new technology based on the return they can get compare to the time and capital needed.

Keywords: Insurtech, Customization, Data Security

Introduction

The importance insurance and its evolvement has increased rapidly throughout last few decades. It's difficult for customers to understand processes as simple as buying, renewing or claiming due to numerous terms and conditions. Keeping customers informed is the key. Through digitization, insurance companies can reach out to customers through online tools such as websites, apps, email, social media, live chat, text, and other digital. Indian insurance companies expect to make use of digital technology as one of their mainstays as the industry becomes increasingly digitalized channels (Acko, 2021). How digitalization in insurance sector affects the value and supply chain. The research shows that the frequency of interactions among young insurance consumers is higher, their propensity to turn to non-insurance firms for insurance, and their information needs differ from those among older insurance consumers (i-scoop, 2016).

This study also briefs about various insurance products offered in the market. Prospective of different age groups, income groups, demographic, social, religious, and political aspects on insurance and using it digitally. Analysis of effort, time and money spent on this digital transformation. The focus of this research/study is to recognize the impact/role of digitalization in insurance sector and how it benefited both insurer and insured. The aim is to conduct an empirical analysis and analyse various parameters of client and service provider relationship.

The study will analyse insurance companies data, people perception, innovation, market share from last 3 decades, when companies are digitaly transforming. This study is mainly focused on Indian insurance industry, but we will also include some global perspectives to gain a better understanding of how different parts of the world react to the change. The study will include views of clients and all the stakeholders i.e., management, employees, agents, customer, vendors, IT partners. In this paper, we will discuss the history of insurance, its importance, its business and economic implications, and its future. Statistical limitations of the study include the fact that the survey data are based on a small number of people who participated for a short period, so generalization of results may be difficult. The study will helps us to understand

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and pretict the future of insurance, by analysing the path till now. This study will help insurers to take a calculative transformation and adoption of new technology based on the return they can get compare to the time and capital needed. This will highlights the areas of the industry which needs more attention thereby innovates. It has become increasingly prudent to consider the customer's overall lifecycle and be more customer-centric in order to decrease costs and increase revenue.

Literature Review

Insurance is financial security against any type of risk. This assurance is defined by a contract between two parties: the insured (beneficiary) and the insurer (the company that sells). Insurance company agrees to take risk (mostly capital) of an insured entity (any individual or any organization) against upcoming events in return for capital compensation known as Premium, this could be monthly or annually. In an event of accident, the insurer must pay a claim to the insured i.e., the sum assured to be paid to the beneficiary(s) according to the documented policy. Recent trends in society are molding the demand for financial services based on the use of Information technologies. The surfacing of new risks targeting human life and economic activity of companies, a hike in the frequency of implementation of the already insured risks, and the need to distance market participants in a pandemic make it necessary for insurance companies to introduce innovations to meet modern demands and ensure fast decision-making, and strengthening of regulatory requirements, the entrepreneurial desire to minimize costs, the evolutionary improvement of business processes and the need to improve the image necessitate the computerizing of insurance companies' internal atmosphere and operations. Information systems are the driving force behind organizational changes in insurance companies. With the help of the digitalization triangle, one can explain digitalization and the impacts it has.

At starting these bonds, premiums, claim settlements and other services are handled offline with a lot of effort and time. By innovating digitally, it benefited both the Insurance company and the customer. AI and ML can automate the claiming and approval process, also ease the related processing like finding the nearest garage or hospital at the time of accident. The digitalization is of great pertinence for insurance organizations' business design, and it has a strong grab on the insurance value chain. Digitalization impacts on processes of underwriting, pricing, distribution, and claims. The involvement of Information technology in Insurance is also known as "insurTech".

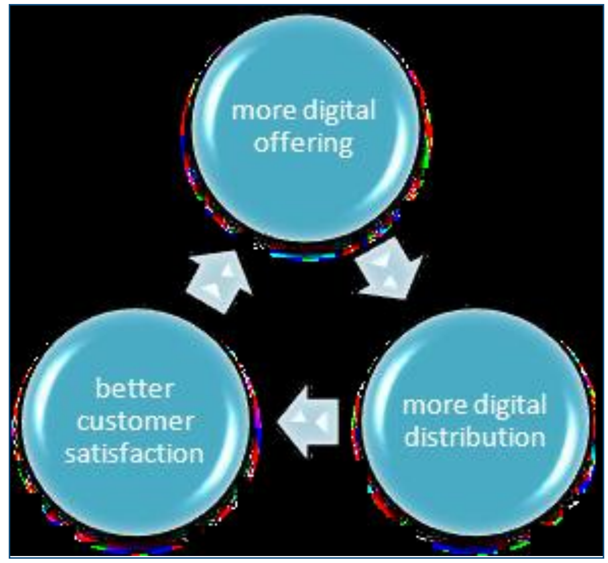


Fig. 1: Digitalization Triangle

Depending on risk involved, insurance policies are of various types. Life (Term), Auto, Health, Travel, Property, Third Party, Liability, Disability, Worker Compensation or Marine Insurance are few of the different types of products in the insurance sector. The insurance sector is, both from a theoretical standpoint (Eling & Lehmann, 2018) and from a practical perspective (International Association of Insurance Supervisors, 2018; Mizgier, Kocsis & Wagner, 2018), undergoing a digital transformation. In the context of the financial market as well as in general, there are many theories that have been developed concerning this phenomenon. Insurance is also one of the latest industries to incorporate new technologies. Investing in insurance digitalization is on the rise worldwide, which might indicate that insurance companies are paying close attention to the benefits of digitalization.

A global report from 2017 shows that between 2012 and 2017, the value of capital spent on insurance tech companies increased from $326 million to $ 2,134 million, and the number of deals in this period increased from 86 to 247 (Statista, 2019b). As a result, there are favourable circumstances from the supply side for the digitalization of insurance companies (once statutory restrictions are taken into account).

In the German, Austrian, and Swiss insurance industries, Maas and Bühler (2015) estimate that 46 percent of processes are currently automated, and health insurers have already automated 47 percent of processes; they expect that 28 percent of processes will be automated, saving the industry an average of 14 percent in costs over the next two decades. By digitization, only 15 percent of processes will still be completed mostly manually, while 50 percent will be semi-automated, and 35 percent fully automated. This can save 30 to 50 percent on non-commission costs. (Catlin, 2015) note in their global study that 70 percent of processes today are performed mostly manually, 25 percent partially automated, and only five percent fully automated.

The return on equity consideration is not only referring to investing in other industries but also referring to working with the insurance industry using alternative business models. A Google spokesman said, "U.S. and U.K. consumers have lost access to insurance broker Google Compare due to its removal from the market". As a result, it might seem as if the profit from pure Google advertising is higher than the potential profit from serving as a broker or a risk carrier, both of which require substantial expertise and upfront investments (Jergler, 2016). In this context, it is important to note that both Amazon and Apple are working with insurers (London General Insurance Company Limited and AIG, respectively) for the warranties offered under their programs (Amazon Protect and AppleCare+).

Furthermore, it is possible that the customer's information only gets shared with a technology provider (i.e., Apple tracks iPhone customers' usage patterns). The technology provider comes up with the calculation and prevention of risks in this constellation. The insurers receive a minimum margin in exchange for carrying the risk.

As an example, health and life insurers could distinguish people based on older age, smoking status, and level of physical activity in addition to age, smoking status, and smoking status. The example of the motor insurance industry is similar, where data are enriched with information about driving behaviour (acceleration, braking, speed, etc.).

The main challenge of this study lies in the lack of an empirically substantiated approach to analysing digitalization at the level of insurance companies. It is impossible to formulate a unified parameter that represents digitalization in the insurance business. Rather, each practitioner or researcher determines his or her own digitalization criteria. In this study, we identify the process of digitalization in insurance companies as the implementation of information and communication technologies (ICT) (Łyskawa et al., 2019)

Research Methodology

A collective approach of both qualitative and quantitative data analysis will be used. Surveys with SMART scorecard questionnaire to insurance employees and customers. We consider both primary and secondary data in this research that is both descriptive and exploratory in nature. The primary data is collected with the help of a questionnaire answered by a convenient sample of public and agents of life insurance companies and interviews. Additional (secondary) data sources include journals, reports, newspapers, websites, etc. A statistical tool was used for data analysis (Hebbar, 2016). Descriptive approach is used when to point out variable is categorical in nature and regression techniques are used when the target variable is continuous. Like if an BFSI company must predict the claim amount or premium, then we can use regression algorithms here. In this the results of the analyses using the two different datasets, depending on the kind of the datasets and the variables involved.

The study is empirical in character and was based on an analysis of two groups of indicators: digitalization and insurance. Expenditures for ICT (software) are included in the first group, while the second group is concerned with the results of insurance activity: gross written premiums and acquisition costs are included in the second group. Information for the study was taken from the financial statements of four of the largest European insurance companies. Based on correlation analysis, the results have been received. Analysis has been carried out for a period of 10 years (from 2008 to 2017).

This model includes the possibility of using parameters from Consolidated Financial Statements. The intangible assets (IAS 38) corresponding to patented technology, computer software, and databases are recognized by companies under International Financial Reporting Standards (EU). By showing the value of independently acquired and internally developed software in its financial statements, the insurance company could prove its value. Besides showing the expenses for software in the consolidated financial statements, the insurer could include them in the notes. The insurance companies, on the other hand, reflect only those software investment programs that will lead to future economic benefits, and those that do not meet the criteria: generate probable future economic benefits, and measure costs accurately, will be reflected as losses. Data was collected from AXA Group (France), Zurich Insurance Group (Switzerland), CNP Assurances (2019) (France), and Talanx Group (Germany). The main criterion was the gross written premium value, but the number of observed items was limited since just part of the companies were open to sharing information about their policies.

Table 1: Selected Indicators for Analysis

Pointer	*Description*	*Source*
Software	An indicator of the digitalization and use of technologies, software value represents the value of the software.	Weingarth, Hagenschulte, Schmidt, & Balser, 2019; Strålin, Gnanasambandam, Andén, Come-llaDorda, & Burkacky, 2016;
ICT Expenses	The indicators used to determine the effectiveness of technologies implemented in the companies and the impact they have on the performance of the companies.	Sidorova, Torres, & Al Beayeyz, 2015; Shin, 2001; Navarrete & Pick, 2002;
Gross Premium	Demonstrated the development of an insurance company or industry	Tien & Yang, 2014; Kramarić, Bach, Dumičić, Žmuk, & Žaja, 2018;
Acquisition costs	Expenses related to finding and signing a new contract	Gatzert (2019)

Source: Vilnius, Lithuania, 2019.

Data Analysis and Interpretation

Adaption of Technology

Specially in the wake of pandemic, technology is core to how the world does business, but particularly in insurance its mostly customers driven.

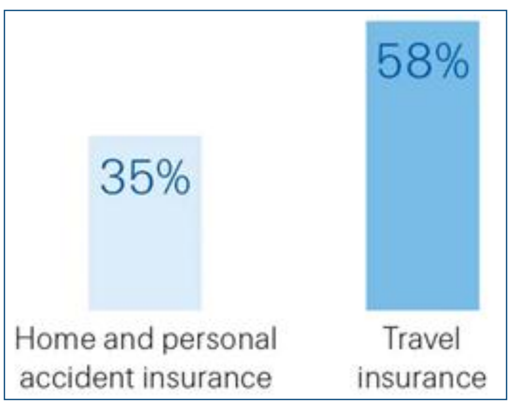
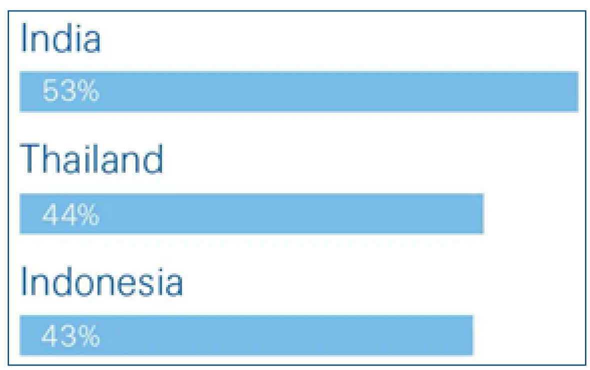


Fig. 2: Product Preference for Online Insurance Purchase

Customers towards Online Insurance, South Asia

India (53%) leads the list of digital insurance ready market followed by Thailand (44%) and Indonesia (43%).

In India, Internet access is expected to increase by 17 percent by 2021 from 429 million users in 2017 to 829 million by then. This will have an impact on the insurance industry and other sectors (Verma, Gupta, Goyal & Sahni, 2021). To achieve efficiency and reduce costs, investors continue to invest in computerized processes.



Source: Higginbotham, 2021.

Fig. 3: South Asian Insurance Market

Customer Concerns While Buying Insurance Online

Lack of personal connect and a human contact to help explain the products, its features and terms would restrict a customer from going digital while buying insurance. This can be controlled by some extent via AR.

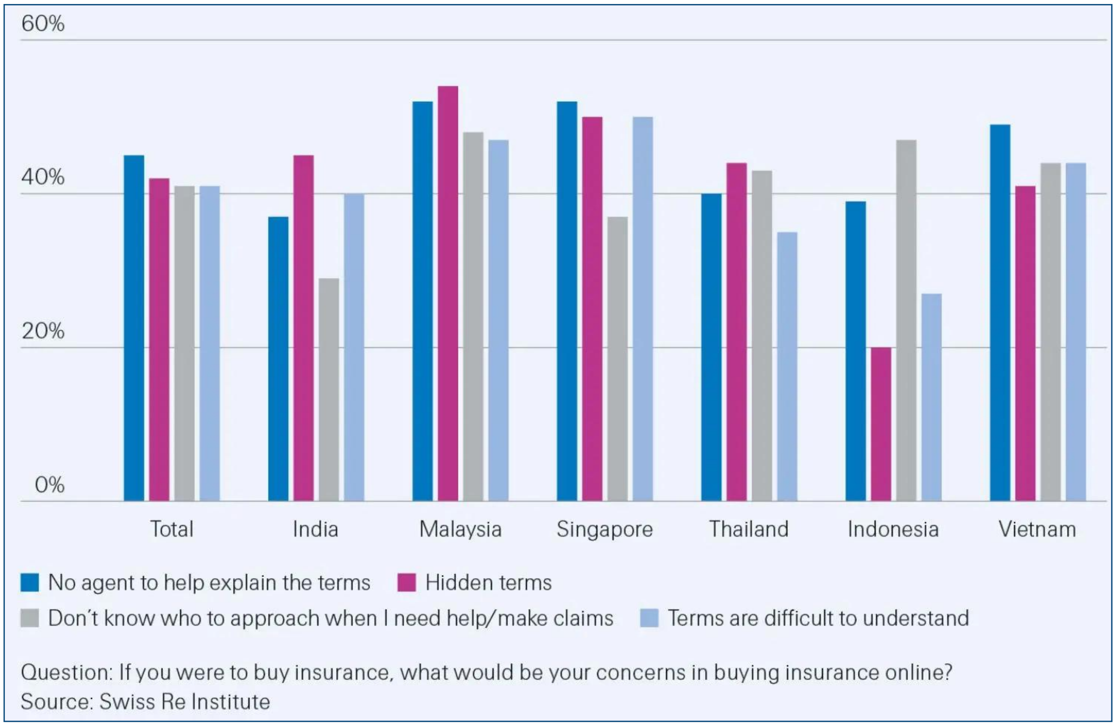


Fig. 4: Customer Concerns While Buying Insurance Online

Buying and Selling Insurance Experience

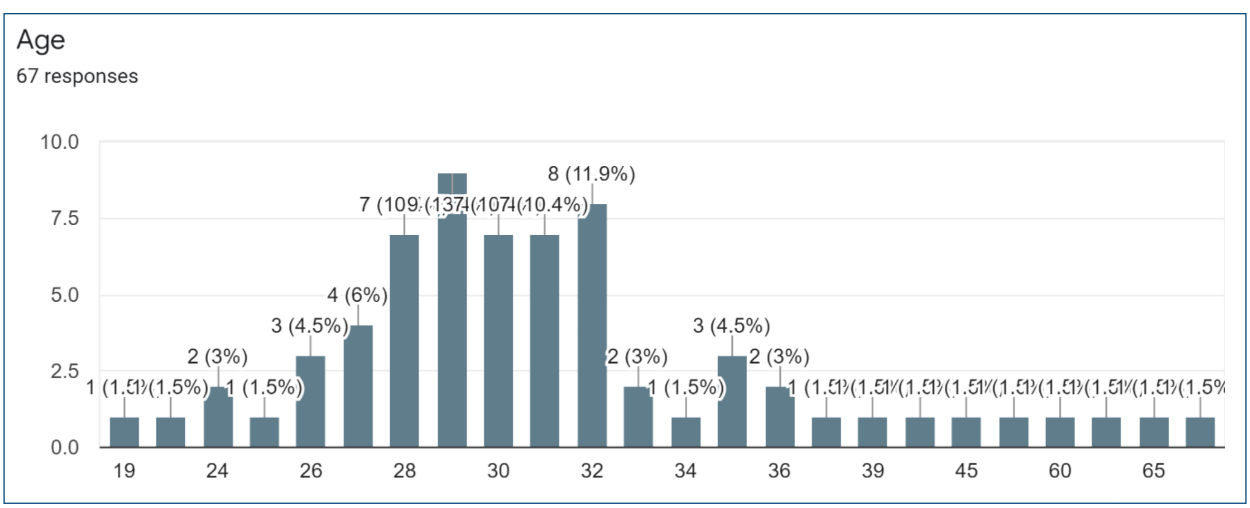
Considering amount of paperwork, time taken, convenience and the choice of product, customer found online experience much more fruitful.

Null Hypothesis: Overall buying or selling Insurance experience is not good, more than or equal to 50% with "Not Agree".

Alternate Hypothesis: Overall buying or selling Insurance experience is good, less than 50% with "Not Agree".

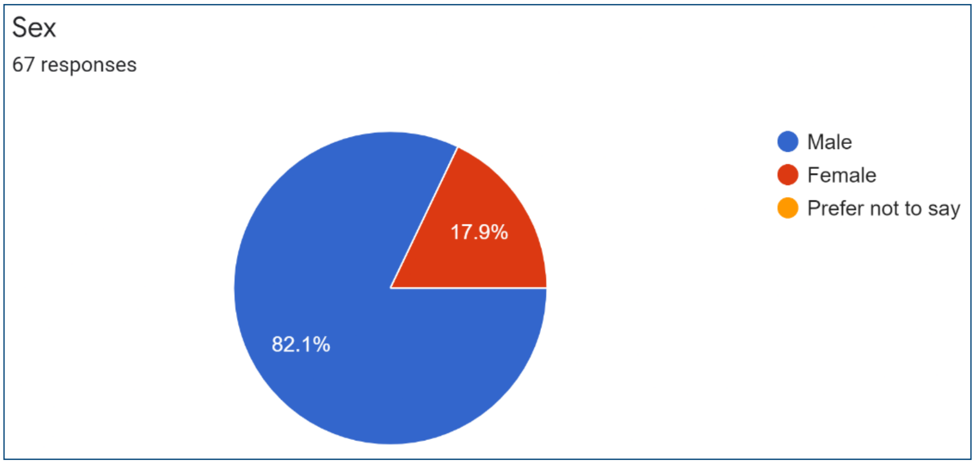
Below is the response from the survey (Katira, 2021).

97% of our sample population is from India and rest of it is from middle east and Europe.



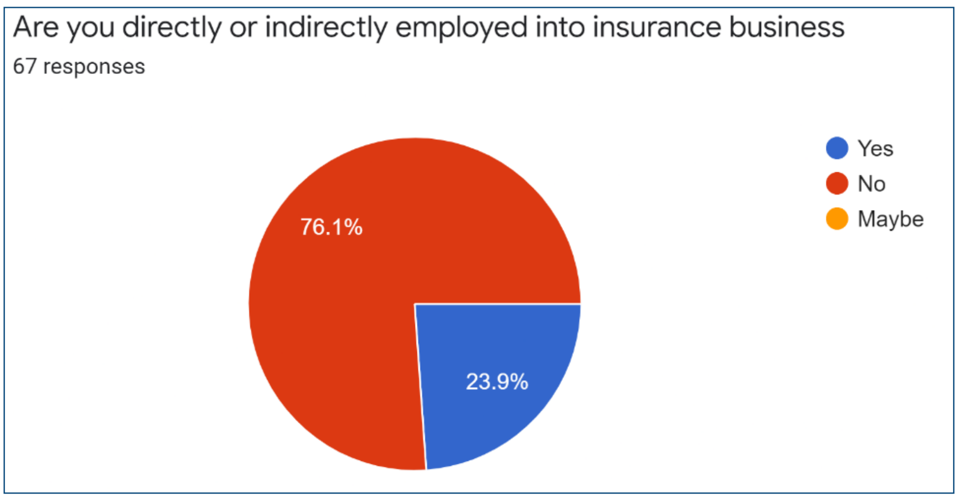
Source: Primary data.

Fig. 5: Age



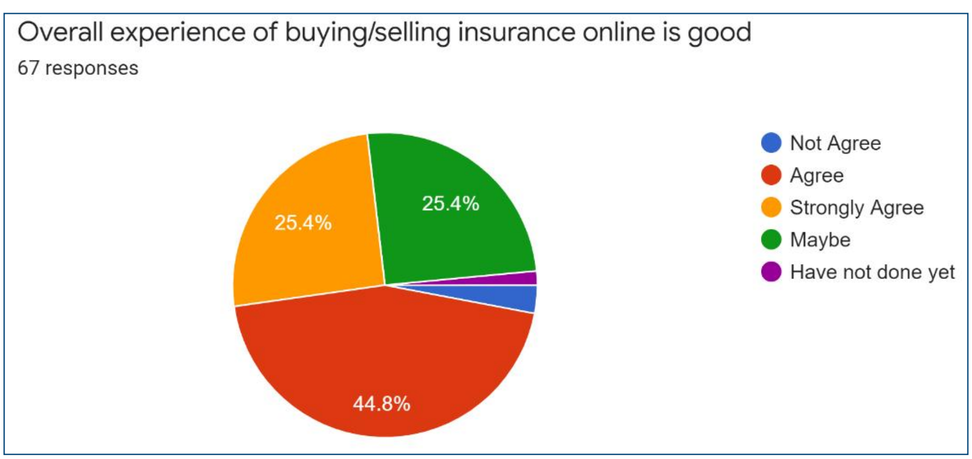
Source: Primary data.

Fig. 6: Sex



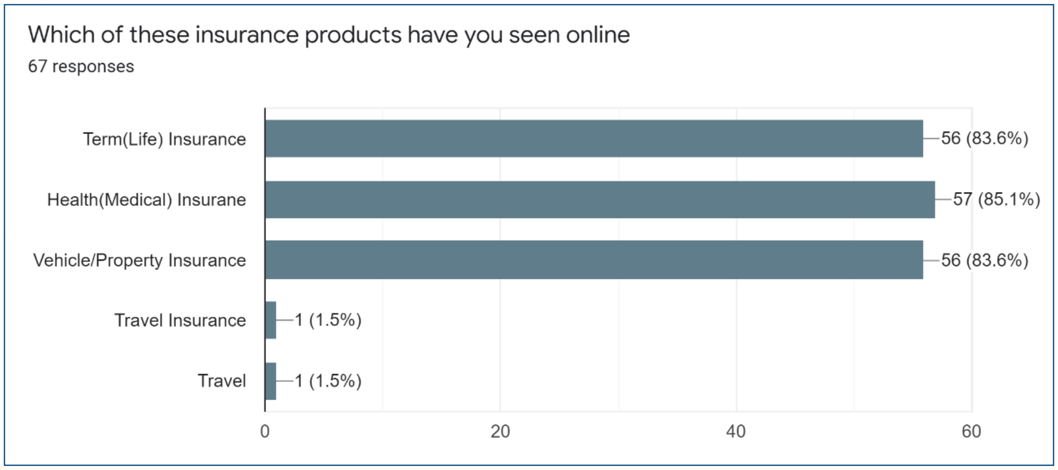
Source: Primary data.

Fig. 7: Consumer or Provider



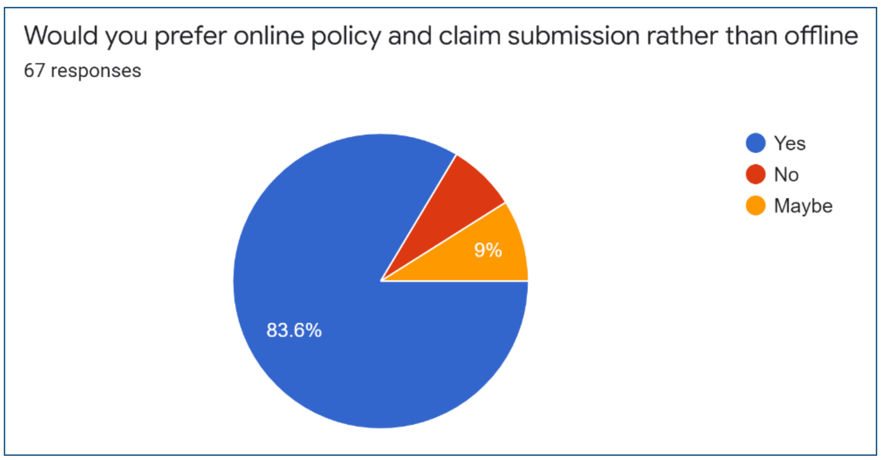
Source: Primary data.

Fig. 8: Experience



Source: Primary data.

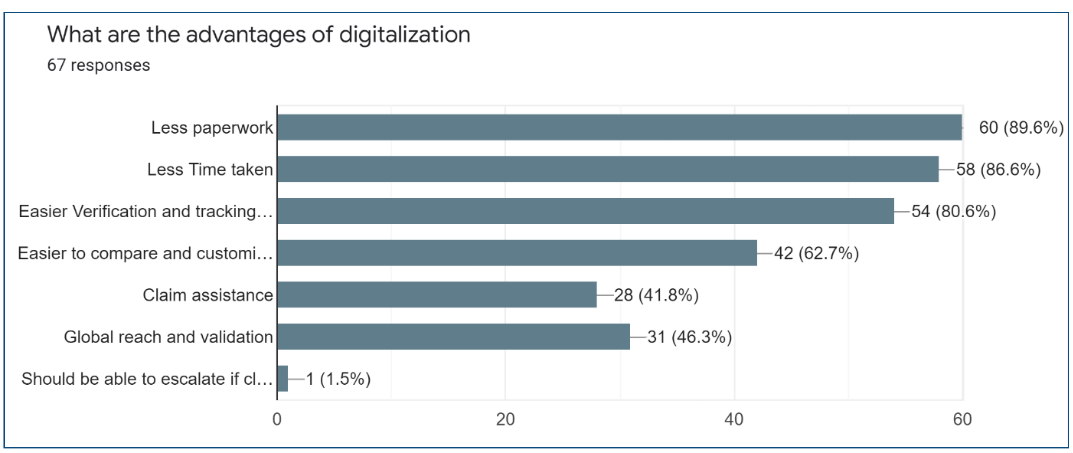
Fig. 9: Different Products Online



Source: Primary data.

Fig. 10: Online vs Offline

Customer preferred online claim and policy submission rather than offline.



Source: Primary data.

Fig. 11: Advantages

Rushing into Digital

One should be curious and excited about innovating and moving digitally but also needs to keep in mind what's important, which is customer not the technology.

Digitalization Indicator Analysis

Accordingly, software is included in the company's intangible assets and developed internally for internal use, where direct costs are capitalized and amortized over the asset's estimated useful life (AXA, 2019) while costs associated with research and maintaining internally developed computer software are expensed as incurred. (International Accounting Standards [IAS], 2014) Capitalize costs incurred during the development phase of computer software when they meet the following recognition criteria:

- As long as the software product can be completed technically so that it will be available for use.
- The management intends to complete the software product and the software will be sold or used by the company as well.
- The software will enable future economic benefits.
- It is possible to accurately measure expenditures.
- Sufficient resources are available to complete the development of the software.

Testing impairment annually in software under development. Software licensing costs are capitalized according to the costs incurred in acquiring and implementing that particular software (Group, 2019).

Typically, computer software licenses and capitalized internal software development costs have a useful life of three to five years. Under certain conditions, capitalized software development costs may be amortized over a period of up to ten years, keeping in mind factors such as obsolescence, technology, innovation, competition and other economic and legal factors.

The companies break down software value in these ways: accumulated amortization, accumulated impairment, and software net value, as well as IT expenses, which include compensation for IT professionals and expenses associated with the construction and maintenance of enterprise-wide systems and services.

The gross written premium relates to the amount of premiums written by insurance and reinsurance companies on business incepted in a given year with respect to both insurance contracts and investment contracts with discretionary participating elements, net of cancellations and gross of reinsurance effected. In addition to commissions and general expenses incurred in acquiring new businesses, acquisition costs also include sales, distribution and administrative expenses incurred for the acquisition of new contracts.

The primary findings of this research lead to the following conclusions:

- AXA Group's gross value premiums increased from 84.66 million euro to 92.05 million euro. As IT expenditures have increased, the software value has more than quadrupled (from 1.87 million euros to 3.13 million) (from 0.78 million euros to 1.36 million). However, acquisition costs did not significantly increase (from 10.14 million euros to 12.02 million).
- Zurich Group's gross value premiums declined by 14 percentage. (from 51.89 million euros to 45.05 million). During this time, the software value climbed by 206 percent (from 1.56 to 4.78 million euro). IT expenditures increased by 71%, from 0.81 million to 1.39 million euros. However, acquisition costs did not significantly increase (from 8.28 to 9.09 million euro).
- CNP Group's gross value premiums increased from 28.27 to 32.46 million euro (14 percent). Over this time, the value of software has increased by 126 percent, from 0.19 to 0.43 million euro. At the same time, purchase costs did not significantly increase (for 34 percent).
- The Talanx Group's gross value premiums increased by almost 74%, from 19.00 to 33.06 million euro. Over this time period, the value of software has increased by less than 43 percent, from 0.39 million euro to 0.56 million euro. At the same time, purchase costs increased by 76%.

Table 2: Summary Statistics of Selected Parameters

Variable	*Mean*	*Standard Deviation*	*Coefficient of Variation, %*	*Average Change Over the Period, %*
Gross value AXA	2.347	0.494	21.05	5.28
Gross written Premiums AXA	86.761	4.390	5.06	0.84
Gross value CNP	0.300	0.081	27.00	8.33
Gross written Premiums CNP	30.388	2.209	7.27	1.39
Gross value Zurich	4.052	1.024	25.27	11.33
Gross written Premiums Zurich	49.586	2.985	6.02	-1.40
Gross value Talanx	0.497	0.058	11.77	3.60
Gross written Premiums Talanx	26.625	4.825	18.12	5.69

Source: (Łyskawa, Kędra, Klapkiv, & Klapkiv, 2019) Consolidated Financial Statements (Gretl CC).

Table 2 shows chosen summary data for the factors studied.

The coefficient of variation was determined using the mean and standard deviation. The standard deviation of a portion of the mean value is shown by this coefficient. The greater the coefficient of variation, the greater the variable's variability (more distinct values). The final column shows the average change during the studied time (as a geometrical mean of chain indexes). It's a metric that illustrates how the variable has changed over time, i.e. how the variable has changed each year (on average). In the example of Zurich (where a negative association between variables was established), there was a large increase in gross value (by 11.33 percent on average each year), but a fall in gross written premiums (by 1.4 percent on average each year).

Table 3: Coefficients and P-Value of Line Trends

Dependent Variable	*Coefficient*	*p-Value in a Significance Test*	*p-Value in White's Test*	*p-Value in Durbin-Watson's Test*	*p-Value in Reset Test*
Gross value – AXA	0.14	0.000	0.10	0.03	0.14
Gross written premiums – AXA	1.171	0.005	0.82	0.02	0.04
Gross value – Talanx	0.018	0.000	0.43	0.89	0.81
Gross written premiums – Talanx	0.199	0.445*	0.21	0.37	0.19
Gross value – AXA	0.14	0.000	0.10	0.03	0.14
Gross written premiums – AXA	1.171	0.005	0.82	0.02	0.04
Gross value – CNP	0.026	0.000	0.10	0.04	0.17
Gross written premiums – CNP	0.199	0.450*	0.30	0.02	0.41

Source: (Łyskawa, Kędra, Klapkiv, & Klapkiv, 2019); Consolidated Financial Statements (Gretl, CC).

The following variables were subjected to an econometric study (Table 3).

With the use of line trend, the influence of time was investigated for all of the examined variables, where insurance characteristics were used as dependent variables and time was utilised as a regressor. We failed to reject the null hypothesis if the significance threshold was greater than the p-value, according to econometric theory (for more on heteroscedasticity, autocorrelation, and functional form misspecification, see (Wooldridge, 2012). A one-percentage-point significance threshold was used. If the null hypothesis was rejected (in all circumstances, the null hypothesis should be rejected in order to declare that these negative events are not present in the investigated models), another model was used, this time using time squared or time cubed (if there were several independent variables, their position is the same as their power – first time, then time squared and/or time cubed).

In the instance of Zurich, the most important impact of time was revealed: time has a beneficial impact on the gross value of Zurich (it grows with time), while time squared has a detrimental effect on this value, and time cubed has a positive impact as well. This shows that the Zurich company's gross value is not constant and changes over time. None of the fitted models appeared to be valid in the situation of gross written premiums in CNP, as the coefficients are negligible (both for time squared and time cubed models). In Talanx, time has the least influence on acquisition costs (just 0.03 increase each year and 0.001 for time squared). In this situation, a Prais-Winsten (Wooldridge, 2012) estimator was used since the null hypothesis was rejected in both the Durbin-Watson test (there was a serial correlation) and the RESET test (the functional form wasn't really linear). An examination of temporal trend was kept despite the fact that it was right (p-value in Jarque-Berra test equaling 0.475).

Results and Discussions

Both customer and the insurer found themselves being more attracted to go online when it comes to buy or sell insurance products, as we have seen in the survey outcome and previous secondary data. Digitalization is becoming a major trend in the insurance industry. It opens up new prospects for corporate growth. The empirical verification revealed a link between the following indicators:

In comparison to 2008, the largest insurance group in the European Union began spending more money on software and IT in 2017. This was demonstrated by the outcomes of all of the firms that were chosen. The dynamics of such expenditures essentially altered and increased.

As a result, it's reasonable to conclude that insurance firms are becoming increasingly interested in new technology and programmes.

In the instance of AXA Group and Talanx Group, the research found a substantial positive association between software gross value and gross written premiums – around 0.9, CNP Group has a low correlation (about 0.3) and Zurich Group has a negative correlation (0.5). It indicates that there is no overall correlation between the increase in gross premiums and the increase in ICT costs. There might be alternative reasons for IT investments, or changes in gross premiums could have other consequences. And lowering ICT expenses is the result of a choice that has nothing to do with insurance intake. With the presented technologies and insurance use cases, the digitalization of insurance business will be substantially enhanced, presenting opportunities that are likely to be increasingly important for competition. Digitalization does not affect the core product of insurance companies, unlike other industries where it has an effect on nearly everything except the product. As part of their product strategy, insurers can use big data (analytics) to implement consumer centricity into their business model and to innovate their products by integrating customer centricity (Lehrer, 2018). There is a majority of young agents in the insurance field with high potential to grasp the application and efficiently use new systems, but few senior advisors find it difficult to adjust to the changing environment, according to this study. The study also found that the insurance sector has implemented digitalization relatively more than the public sector (Hebbar, 2016).

Conclusions and Recommendations

The study revealed a conflict between theoretical foundation and practical implementation of digitization processes in the insurance industry:

- Digitalization in insurance is becoming a hot issue in science; yet, there is considerable confusion about the concept, structure, and method of digitalization in insurance. The use of information technology is widely recognised as a characteristic of digitalization.
- The only financial statement criteria that might be utilised to analyse digital activities in the insurance firm are the indicators of IT costs and software gross value. We only demonstrated a small portion of the instruments now in use in a few insurance groups: information technology and software.

The difference that was noted before might explain the examination of the relationship between acquisition costs and software value. Companies with a strong positive connection between acquisition costs and software gross value had a low positive correlation between gross writing premium and software gross value. Through the use of digital technologies, insurers and policyholders can address the information asymmetries that contribute to moral hazard and adverse selection (SCOR, 2018). The study's conclusions reveal that insurance use cases implement the major technologies in a comprehensive manner that changes IT requirements for the insurers. The results indicate that insurers are increasingly able to develop products and services designed to meet the needs of their clients, e.g., by implementing improved customer segmentation and targeting strategies or by customizing their underwriting and pricing according to their needs. The development of comprehensive insurance platforms that combine prevention, (digital) consultancy, claims processing, and risk determination represents an important opportunity. Additionally, identifying and reducing fraud patterns within large customer databases is also helpful.

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