







# “Innovations in the insurance market of a developing country: Case of Ukraine”

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# INNOVATIONS IN THE INSURANCE MARKET OF A DEVELOPING COUNTRY: CASE OF UKRAINE

## Abstract

Modern insurance business, including in developing countries, is associated with the introduction of innovations. The purpose of this paper is to clarify the features of the insurance market's innovation in Ukraine by reviewing the literature and analytical data on the market as a whole and its individual participants. The results show that innovations implemented in the insurance market can be classified according to certain characteristics, which provides opportunities for its empirical study. The analysis reveals that the peculiarities of the innovative development of the Ukrainian insurance market are determined by many factors, among which digitalization and increased risks due to the COVID-19 pandemic are the main ones today. Based on the analysis of leading insurance companies' practice, it is concluded that they implement only a limited amount of innovations, mainly of incremental and combinatorial types, and do not actively use modern communication channels with consumers. The results highlight the need for insurance and FinTech companies to cooperate in the innovation ecosystem, which is still being formed in the Ukrainian insurance market. The study also considers the possibility of using a system of indicators to assess the innovativeness of insurance companies.

## Keywords

insurance, innovation, market, services, sales channels,  
assessment

## JEL Classification

G22, O31

## INTRODUCTION

In the modern context of high dynamism of all economic and social spheres, increase and diversification of business and life risks, deterioration of climatic and natural conditions, insurance is becoming one of the most important areas of financial services. Customers expect insurance companies to provide services that meet their needs and are rendered conveniently, quickly and at reasonable rates. Therefore, today the successful development of insurance companies can only take place with the application of innovative approaches to all aspects of their performance.

Insurance innovation belongs to a broader class of financial innovations, and the latter, in turn, belongs to innovations in the service sector. This determines the specifics of the factors of their occurrence, the peculiarities of their creation and diffusion processes, as well as the results of implementation. Insurance, as a rather conservative financial services industry, has recently been influenced by many trends that form conditions and at the same time determine the emergence of various innovations that meet the dynamic needs of customers and increase the efficiency and competitiveness of insurance companies.

However, the implementation of insurance innovations in different countries differs significantly depending on the maturity of their fi-

financial markets. In this regard, Ukrainian insurance companies are only at the beginning of the path of innovation development, due to a relatively short period of market transformation of the economy, lack of insurance traditions in society, low insurance culture and general welfare, low competitiveness of the insurance market.

Thus, the study aims to investigate the innovation development of the Ukrainian insurance market and to identify its features.

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## 1. LITERATURE REVIEW

Researchers rightly point out that for a long time, the study of innovation in the financial sector has received much less attention than innovation in other sectors of the economy (Mention & Torkkeli, 2014). This is due to intangible nature of these innovations, the complexity of their visualization, the lack, as a rule, of a formalized innovation process and innovation development units in financial institutions. In addition, statistics on this type of innovation is significantly limited as the financial sector is not characterized by R&D and patenting of innovative products. Surveys conducted at the national level using the methodology of international documents (e.g. OECD/Eurostat, 2018) not always fully cover financial institutions.

Nonetheless, the global financial crisis of 2007–2008, caused, inter alia, by the uncontrolled creation and spread of innovative financial instruments, significantly increased interest to the innovative development of financial services. It is worth noting the work of Gubler (2011), which advocates a broad view of financial innovation primarily as a process of change, a change in the type and variety of available financial products, and a change in financial intermediaries and markets themselves. Mention and Torkkeli (2014) reveal many problematic aspects of innovation in financial services such as the impact of government regulation, intellectual property protection, application of favorable business models, the impact of information and communication technologies (ICT), etc. Vermeulen and Raab (2007) explore the role of organizational factors in the development and implementation process of product innovation in financial organizations.

However, in recent decades, some aspects of innovation processes in the field of insurance have been

reflected in the works of many scientists. A number of papers are devoted to the study of the marketing and ICT development as factors influencing the implementation of innovations in insurance companies. Lado and Maydeu-Olivares (2001) note a significant positive impact of the marketing orientation of insurance companies on the level of their innovation and the quality of the innovation process in both the US and EU markets. The conclusion indicates the possibility of using the principles of marketing orientation to increase the efficiency of innovations. Johnes and Davies (2000), studying small insurance companies, also emphasize the role of marketing in initiating the innovation process. At the same time, the authors analyze different types of innovations such as product, process, and marketing ones, and the challenges they bring to the business of companies with poor experience in change management.

Stoekli et al. (2018) characterize the newest way of using ICT for insurance services – InsurTech, conducting an in-depth analysis of information obtained from Twitter and through interviews, and structuring it into six areas and fourteen transformational capabilities. This study provides a comprehensive picture of the innovation ecosystem that is being formed in the insurance sector. Hemphill (2019) analyzes the role of FinTech companies in the operation of the US-specific title insurance market. Arun Kumar and Yellampalli (2018) and Salaichuk (2017) consider the possibility of implementing breakthrough innovations in the field of motor insurance, such as telematics and blockchain, which provide numerous benefits both to policyholders and the insurance companies themselves.

Tretyak (2017) and Pikus and Zakolodyazhny (2016) examine the problem of personal insurance development that is rather relevant to Ukraine. Scientists argue that the study and adaptation of

foreign innovations in services and sales channels in the local insurance market will increase the availability of personal insurance, ensure large-scale participation, thereby increasing the level of socio-economic security.

Marketing innovations of insurance companies are also actively analyzed. Epetimehin (2011) shows that they are crucial in organizational success. He also concludes that the insurance industry can improve their businesses and achieve a competitive advantage through marketing innovations and creativity. Hilker (2016) deals with different views on social media marketing in the insurance sector using case studies on design of new processes within the innovation management and indicating benefits for insurance companies. Prymostka (2018) evaluates internet marketing strategies of life insurance companies in Ukraine. During the transition to digital technologies in the insurance market, they are being introduced into the online component of the marketing strategy. Shkolnyk et al. (2019) investigate the types of financial risks arising in the stock market using the method of their equalization (insurance, hedging, diversification, etc.) and determine the risk factors of investors in the stock market. Prokopchuk et al. (2019) show the principle of structural formation and functional characteristics of the agricultural insurance market in Ukraine. Kneysler et al. (2019) identify problematic trends in the development of the health insurance market in Ukraine and the competitive positions of leading insurance companies in it.

Finally, the scholars study innovations that involve using new financial instruments to hedge disaster risks and are designed to improve the financial performance of insurance companies. Chichilinsky (1996) and Laster and Raturi (2002) prove the expediency of using financial instruments such as catastrophe bonds, catastrophe swaps, industry loss warranties, etc.

In accordance with existing theoretical provisions, an innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit process (OECD/Eurostat, 2018). It is worth

emphasizing the following important aspects of this definition:

- innovation is not only a new product or process, but also an improved one. The main thing is that its properties differ significantly from what was used by the organization before;
- products (goods and services) and processes (or their combination) are the objects of innovation. So, in this aspect, there are no longer four types of innovation, as before (product, process, marketing and organizational), but only two, namely product and process ones;
- innovation cannot remain an idea; it must be implemented in the practice of the organization.

According to its nature, innovation must always create added value – for customers, owners, managers and employees of an insurance company. It may include covering new types of risk, simplifying the insurance indemnity mechanism, increasing the convenience of purchasing a policy, increasing the company's income or cost savings, ensuring its solvency, optimizing business processes or improving working conditions, etc. Thus, insurance innovation can be defined as newly created or significantly improved insurance products, technologies and business processes to best meet the policyholders' needs and ensure the competitiveness, profitability and financial reliability of an insurance company.

The classification of insurance innovations is an important part of the theoretical basis. First of all, according to the object of innovations, as already mentioned, they are divided into product (i.e. in insurance services) and process ones. At the same time, the new Oslo Manual (OECD/Eurostat, 2018, p. 73) offers a list of six main business functions that may be an object of innovation. They include production of goods or services, distribution and logistics, marketing and sales, information and communication systems, administration and management, product and business process development.

The micro level is considered to be the lowest one to assess the innovation changes, which follows

from the very definition of innovation (“...that differs significantly from the unit’s previous products or processes”). Therefore, in terms of the degree of novelty, there are innovations at the level of particular insurance company, at the level of the national insurance market and the worldwide insurance innovations. The latter are quite rare, now they are mainly related to the use of digital technologies in insurance. At the national level, insurance products and technologies adopted from abroad are innovations too. Any new products or processes (self-developed or adopted from other companies) are innovations for a particular insurer, just like products that were sold in one market but were put on another market.

According to the depth of change (or innovation capacity), innovations, including financial innovations, are traditionally divided into radical and incremental ones (Mensch, 1979; Llewellyn, 1992). Radical innovation in insurance includes, in particular, the emergence of a completely new service (cyber risk insurance). The improvement and modification of existing products and processes (“individualization” of insurance products, digitalization of business processes, etc.) are incremental innovations. Combinatorial innovations, created as a new combination of already known elements of products, technologies, processes etc., form a separate type (Prigozhin, 1989). They are quite common in the field of insurance (in particular, complex insurance products that cover several heterogeneous risks).

The classification of innovations by the nature of the needs they met is extremely relevant for the intensification of insurance companies’ innovations. Innovation can be about meeting existing needs or creating new ones (Frame & White, 2004). This differentiation, applies to both product and process innovations.

The financial needs of customers, which exist but are not yet met, can be identified either by marketing research of the insurance company, or when the customers turn to the insurer. This gives impetus to the development of new products and new service technologies. In this way, credit risk insurance, medical insurance and medical assistance when traveling abroad, environmental insurance, etc. were introduced in the Ukrainian insurance market.

The implementation of innovation aimed at creating new customers’ needs requires the insurance company to have significant innovation capacity and sufficient financial resources. Such innovation bears a great risk in the case of a wrong strategic decision. However, the number of such innovations in the insurance markets of developed countries and in emerging markets differs; in the latter case, there are more of them. Here, due to the historical financial backwardness, insurance companies, while developing new products usually using foreign experience, are really engaged in creating new financial needs, thereby increasing the insurance literacy of customers.

In addition, insurance innovations can be classified according to the method of their development. The traditional model of innovations involves the implementation of all innovation process stages within the organization – from the origin of the idea to marketing support for a new product, i.e. innovations are developed by the insurer himself.

In today’s distributed knowledge and networking environment, this concept can no longer be considered optimal, so the model of “open innovation” is becoming more widespread (Chesbrough, 2003; Fasnacht, 2009; Schueffel & Vadana, 2015). In the case of insurance companies, this means that they must make greater use of the opportunities of strategic partnerships to conduct joint research, involve external developers, and use innovative products and technologies offered by IT companies. Under the concept of open innovation, customers are seen as partners, so they are included in the mechanism of generating and testing of innovative ideas.

Features of innovations in insurance are determined by the characteristics of insurance as a type of economic (financial) activity:

- insurance service is intangible and does not belong to the essential services, which complicates people’s understanding of its essence, assessment of the quality and range of options for its provision. This hinders the implementation of innovative products;
- there is a rather strict public regulation of insurance activities, which, on the one hand,

stimulates innovation activity to meet regulatory requirements, and on the other hand, prevents it due to the regulatory restrictions;

- R&D is not typical for the insurance industry, so innovative ideas are, first of all, the result of marketing research and interaction with clients, as well as those brought from outside (ICT, business consulting, etc.);
- financial innovations in general and insurance innovations in particular are practically not subject to patenting (Lerner, 2010). In particular, in 2020, there were only five patents in the patent base of Ukraine that related to insurance and protected mainly data processing systems. This contributes to rapid and unimpeded copying of innovations by competitors and forces insurance companies to innovate constantly to ensure their own competitiveness.

Nowadays, the widespread introduction of digital services, artificial intelligence, the Internet of things, social, cloud and blockchain technologies (Natorina, 2018) is the trend of the insurance industry's development. But the most serious changes are taking place in the channels of communication with customers: in the coming years, the share of direct sales, as well as alternative tools for choosing, comparing and purchasing insurance products, will grow rapidly. In general, the global insurance industry is moving towards providing

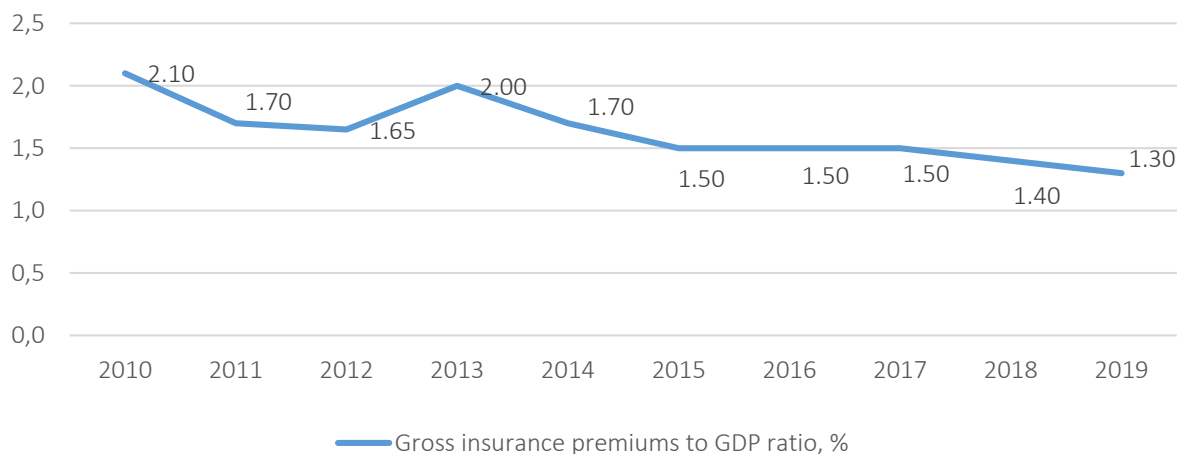
not only financial compensation, but also technical, advisory and legal support.

In the current context of the diversification of customer needs and digitalization of business, innovation to some extent also occurs in the Ukrainian insurance market that is much less developed than in the countries with stable market economies. It is evidenced, in particular, by the ratio of gross insurance premiums to GDP (Figure 1). While in developed countries this ratio is usually 8-15%, in Ukraine it has not exceeded 2% over the past ten years. At the same time, there is a tendency to its decrease.

As of the end of 2019, the total number of insurance companies in Ukraine was 233, of which 23 insurers operated in the field of life insurance and 210 insurers carried out types of insurance other than life insurance. During 2015–2019, there was a tendency to reduce both the total number of insurance companies and insurers by specialization. Thus, the total number of insurers in 2019 decreased compared to 2015 by 128 companies, of which 26 are life insurance companies. However, despite a decrease in the number of insurers, the main indicators of their performance – the amounts of gross insurance premiums, gross insurance payments and insurance reserves – have been constantly growing (Figure 2).

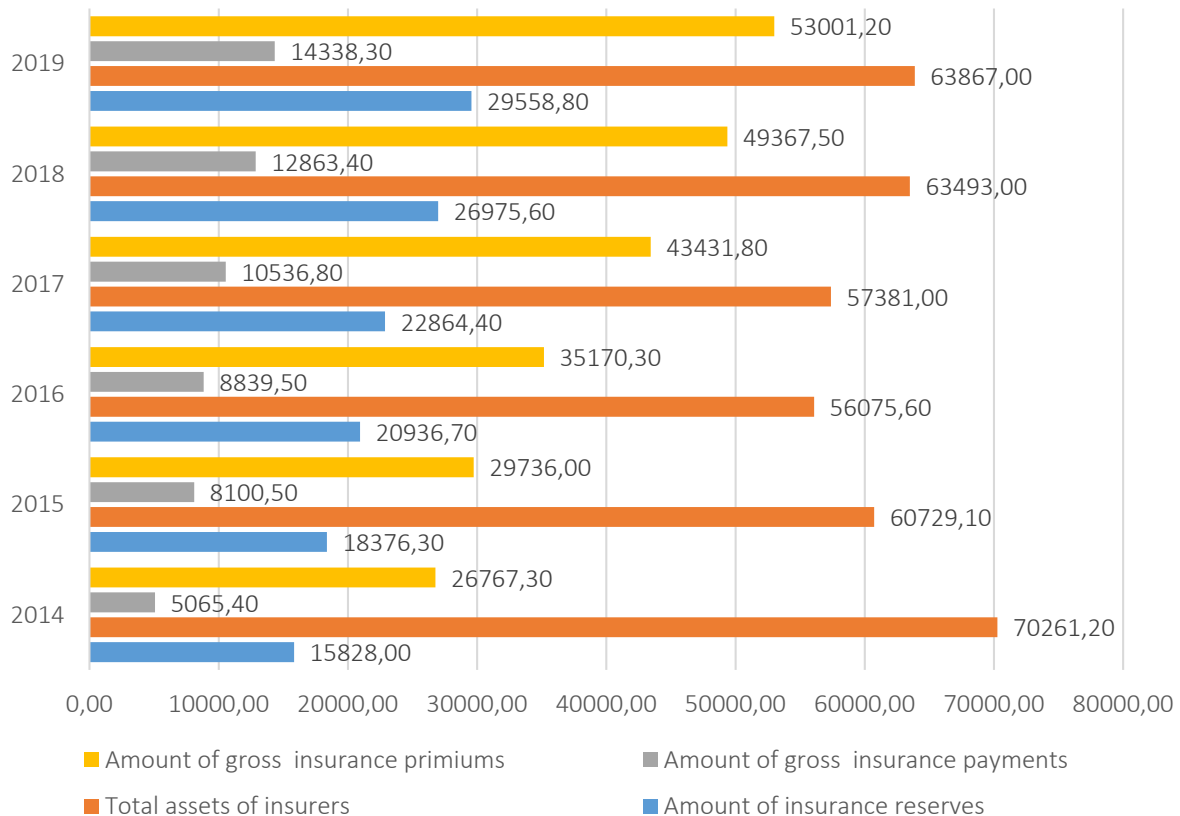
The analysis revealed that in 2019, 98.1% of all gross insurance premiums were collected by 100

Source: Developed by the authors on the basis of the National Bank of Ukraine (2020a) and State Statistics Service of Ukraine (2020) data.



**Figure 1.** Dynamics of the gross insurance premiums to GDP ratio in Ukraine in 2010–2019

Source: Developed by the authors on the base of the National Bank of Ukraine (2020a) data.



**Figure 2.** Dynamics of some Ukrainian insurance market's indicators in 2015–2019

insurers that provided non-life insurance, which accounted for 47.6% of insurance companies operating in this segment of the market. At the same time, 10 life insurers, which accounted for 43.8% of this type of insurance companies, collected 96.7% of insurance premiums. In risk insurance, where gross premiums in 2019 accounted for 91.3% of their total, all types of motor insurance, property insurance and health insurance were the most developed, and in the life insurance segment – the long-term accumulative insurance (National Bank of Ukraine, 2020a).

Thus, in 2015–2019, the main competition in the Ukrainian insurance market was between 100 insurers for risk insurance and 10 insurers for life insurance, and it was especially fierce in the abovementioned types of insurance. It is reasonable to assume that in the near future, the situation will not change significantly, and the implementation of innovations will be carried out by Ukrainian insurers mainly in the field of new insurance services and sales channels due to the

digitalization trends and the current situation with the global pandemic.

The imposition of quarantine gave impetus to the rapid development of e-commerce in insurance, which is beginning to compete with the classic territorial sales networks and becomes an integral part of them although permission to sell insurance policies online was granted in Ukraine only at the end of 2017. Insurers' business processes were actively restructured into telecommuting. In particular, the sales amount of compulsory insurance of civil liability of vehicle owners' (CCLI) e-policies is constantly growing: the monthly increase reaches 5-10%. In the first half of 2020, 36% of insurance premiums fell on auto insurance (CCLI, Green Card, CASCO). Personal insurance (voluntary health insurance, accident insurance, life insurance) accounted for 28%. The share of CCLI e-policies in the 2nd quarter was 35%, compared to 30% in the 1st quarter of 2020 (National Bank of Ukraine, 2020b). The infrastructure and mental-

ity of consumers are the obstacles to more active digitalization of insurance services in Ukraine.

Imperfect government regulation was until recently another problem on the way to innovation development of the Ukrainian insurance market. But from mid-2020, regulation and supervision of non-banking financial sector institutions have shifted from the National Commission for the State Regulation of Financial Services Markets to the National Bank of Ukraine (Verkhovna Rada of Ukraine, 2020), which should surely increase the dynamism of domestic insurance market's development. Just at the first stages, the National Bank of Ukraine plans to implement certain institutional innovations in this area – licensing of specialized reinsurance companies, authorization of brokers, agents and financial advisers, a significant reduction in the number of types of compulsory insurance, and the abolition of government regulation of its pricing.

However, the adoption of the Strategy for the Development of the Financial Sector of Ukraine until 2025 and the Strategy for the Development of Fintech in Ukraine until 2025 (National Bank of Ukraine, 2020c) by the National Bank is of particular importance in terms of strengthening the innovativeness of the insurance market. The transformations designed in these Strategies are dictated by the new challenges that stimulate the active growth of digital operations and shape the demand for digital products and services in the financial sector. The creation of a full-fledged InsurTech ecosystem in Ukraine will be facilitated by the National Bank's implementation of projects such as providing an environment for testing innovative products and services (a regulatory "sandbox"), developing a government funding program for startups, including FinTech, implementing new remote models of clients' identification and verification, regulating the use of digital signatures, ensuring the use of cloud technologies in the financial market, etc.

In general, it should be noted that the digitalization processes in the Ukrainian insurance business are much slower than, in particular, in the banking sector. FinTech ecosystem (more specifically, InsurTech) is not diverse and is still in its infancy. If in 2018 the number of FinTech-providers

in Ukraine was about 80, then InsurTech actually had only two marketplaces (or aggregators of insurance services): cvln.in and EWA. They allow comparing offers from insurance companies on one site and very quickly drawing up the necessary policy. In 2020, the number of such marketplaces in Ukraine has increased to 6 with hotline.finance, the application privat24, and polis.ua as leaders. In 2019, more than 70.000 insurance policies were issued with the help of only one online service hotline.finance. Every month, this service is growing by 10-15%, and in 2019 the number of issued policies increased more than 10 times compared to 2018.

Thus, the insurance market of Ukraine does not stand aside from global innovation trends, but the quantitative characteristics of innovation processes and systematization of their areas for further improvement of insurance companies' innovation management still remain the problem.

## 2. GENERALIZATION OF THE MAIN STATEMENTS

It is worth noting that nowadays the official statistics provide very limited and vague data on innovation activity in the insurance sector of the Ukrainian economy. According to the results of the relevant statistical surveys (State Statistics Service of Ukraine, 2018), in 2016–2018, 580 financial and insurance organizations were surveyed, of which 222, or 38.3%, declared themselves as innovatively active, including only 67 institutions (30.2%) implemented product and/or process innovations, and 155 institutions (69.8%) implemented marketing and/or organizational innovations. In 2018, in the total amount of services' sales of innovative organizations in the field of finance and insurance, products that were new to the market were absent, and products new to the company made 4.2%.

Expenditures on innovation were distributed in the financial and insurance sectors as follows: 2.9% – internal R&D, 1.8% – external R&D, purchase of equipment and software – 43.6%, and other innovative activities amounted to 51.7%. 53.7%



of innovative financial and insurance institutions implemented innovations independently (State Statistics Service of Ukraine, 2018, pp. 85-100).

However, it is obvious that the above information can provide only the most general guidelines for understanding the situation, because, firstly, it does not reflect the state of affairs directly in the field of insurance, and secondly, it does not contain data on the types of innovative services and processes that have been implemented, which makes it impossible to characterize them qualitatively and quantitatively.

Therefore, this study tried to systematize the innovation results of Ukrainian insurance companies by analyzing the information posted on their websites. Ten companies engaged in risk insurance and which in 2019 were the first in the market in terms of gross premiums received were selected for the review. The offers of insurance products and the content of company management reports were analyzed. The results of the analysis presented in Appendix A led to the following conclusions:

- insurance companies that are market leaders are actively implementing innovations at the same time, which confirms the direct link between innovation, competitiveness and performance;
- product innovations, in general, are of incremental type (due to the adaptation to the individual needs of clients) and of combinatorial type, created by adding coverage of additional risks to the main ones;
- insurance companies responded extremely quickly to the emergence of new risks to human health in the context of the COVID-19 pandemic, introducing new health insurance products, expanding the range of diseases covered by travel insurance, and offering opportunities to buy such policies online. The cost of a new insurance policy is only USD 5 more than the classic terms of travel insurance, but it covers the costs of providing the necessary medical care, living abroad and returning home;
- so far, almost no foreign innovative products are brought to the domestic market, which is

probably due to the specific needs of local customers, their standard of living and mentality;

- certain difficulties with the attribution of innovations to different types are an objective phenomenon, because nowadays, insurance products are gradually transformed into products-processes, in which it is difficult to separate the service from the technology (process) of its provision;
- insurance companies are not yet actively using modern channels of communication with consumers to settle insurance cases, build customer loyalty, and maintain the image of the insurer.

Insurance companies should pay attention to the possibility of the innovation changes in their business processes. Table 1 specifies the process insurance innovations according to the insurance management functions.

At the same time, it is worth noting the lack of quantitative indicators that would characterize the innovation level of insurance companies in the scientific literature. However, there is a need for such indicators to refine the competitiveness rating of the insurers and to give them an instrument to improve the assessment of innovation goals' achievement. Such indicators are presented in Table 2. They are formed on the basis of data created in the process of financial and marketing activities of insurance companies, taking into account the relevant scientific developments (Mamedova, 2018; Mention & Torkkeli, 2014; Śliwiński et al., 2015; Yehorycheva, 2015).

At present, it is impossible for external researchers to calculate most of these indicators, since insurance companies do not keep relevant records. However, subject to the detailed managerial accounting by distributing the total amount of insurance premiums by the types of insurance products and sales channels, the above data (Table 2) for the calculations can be obtained.

But even now some indicators can be calculated on the basis of official data published by insurers. Take, for example, PJSC IC PZU Ukraine, since this insurer in 2014 offered consumers an inno-

**Table 1.** Types of insurance companies' process innovations

Source: Based on the Oslo Manual.

A business function that can be the object of innovation	Business processes of an insurance company	Examples of innovation
Production of goods or services	Production of services	Peer-to-peer insurance; implementation of telematics in car insurance; smart contracts using blockchain
Distribution and logistics	Service delivery	Online insurance; online insurance aggregators; mobile applications
Marketing and sales	Advertising, direct marketing, pricing methods, after-sales activities, settlement of insurance claims, compensation for damages	Product placement; SMS and email marketing; gamification. Usage-based insurance for reducing the value of contracts. Assistance programs. Using big data to improve claim processing capabilities and chat bots for quick claims' settlement
Information and communication systems	The maintenance and provision of information and communication systems	Introduction of service-oriented architecture, data warehouse, cloud services, CRM systems
Administration and management	Underwriting, risk management (reinsurance), strategic and operational management, formation of organizational structure, ensuring financial reliability and solvency of the insurance company	Using big data and machine learning in underwriting. Online instrument "Name Your Price"; an "activated on request" insurance policy. Using catastrophe bonds for risk management
Product and business process development	Development of new insurance products and business processes of insurance company	Creation of innovation units (AXA Labs, AXA's startup studio, INGO Ukraine Project Office). Use of crowdsourcing

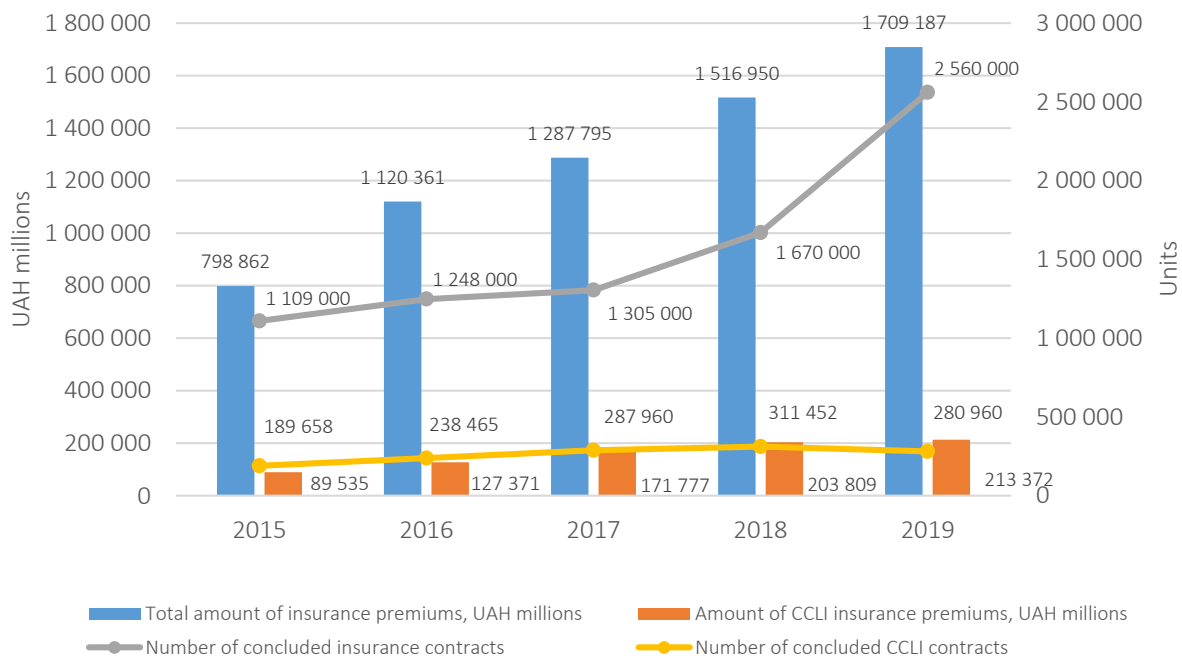
**Table 2.** Indicators for assessing the innovation of an insurance company

Indicator	Calculation formula	Legend	Expected value
Growth index of a product's innovative gross insurance premiums	$I_{di} = \frac{\Delta IP}{IP}$	$\Delta IP$ – increase in insurance premiums due to the innovative improvement of a particular insurance product, $IP$ – gross insurance premiums for a particular insurance product	> 0,5
Innovation level	$L_i = \frac{N_i}{N}$	$N_i$ – number of insurance contracts concluded with the use of innovation, $N$ – total number of concluded insurance contracts	~ 0,5
Growth index of innovative gross insurance premiums	$I_t = \frac{\Delta IP_t}{IP_t}$	$\Delta IP_t$ – increase in insurance premiums due to the innovative improvement of insurance products, $IP_t$ – total gross insurance premiums	> 0,1
Sales channel innovation ratio	$R_{isc} = \frac{IP_{isc}}{IP_t}$	$IP_{isc}$ – insurance premiums received from the sale of insurance products through innovative sales channels; $IP_t$ – total gross insurance premiums	~ 0,5
Efficiency ratio of sales channel innovation	$R_e = \frac{S}{IP_t}$	$S$ – savings resulting from the use of innovation sales channels; $IP_t$ – total gross insurance premiums	> 0,1

vative product for the compulsory insurance of civil liability of vehicle owners. For the first time in Ukraine, they started paying insurance indemnities to their clients by applying recourse claims to insurance companies whose clients were the perpetrators of road accidents. This increased the efficiency of this type of motor insurance by reducing the waiting time for customers to recover damages.

At the same time, the insurer revised the tariff policy and underwriting when conducting voluntary motor insurance (CASCO), applying differentiation in the insurance rate calculation based on the vehicle color. In addition, when clients purchased a policy of compulsory civil liability insurance of vehicle owners, the insurer entered into home property insurance agreements on favorable terms and at their request. Such innovative approaches

Source: Developed by the authors on the basis of the National Bank of Ukraine (2020a) and PZU Ukraine Insurance Company (2020) data.



**Figure 3.** Dynamics of some performance indicators of PZU Ukraine in 2016–2019

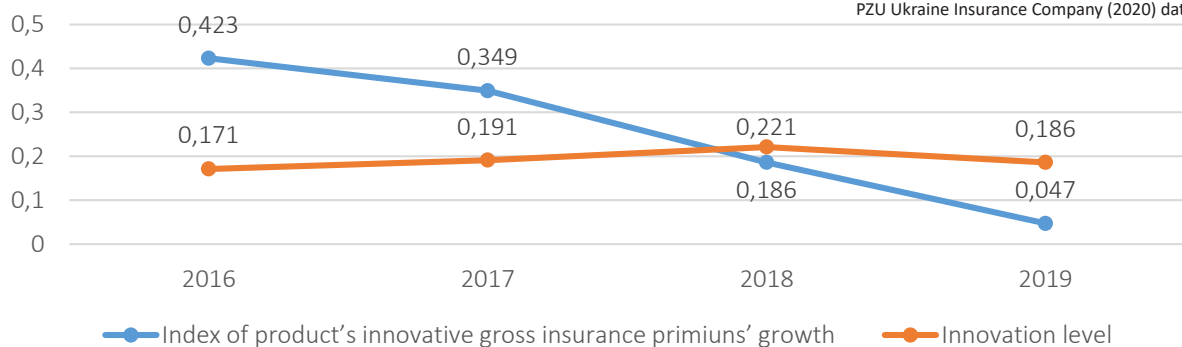
led to an increase in the number of PZU Ukraine clients and a stable positive dynamics of gross insurance premiums and the number of concluded insurance contracts in 2016–2019 (Figure 3).

growth dynamics in the number of concluded contracts for CCLI of PZU Ukraine during 2016–2019 remained consistently close to the expected value of the innovation level indicator (Figure 4).

Figure 3 shows the positive dynamics of gross insurance premiums for CCLI where innovation was applied in 2015–2019. In total, their amount has more than doubled. However, the intensity of accumulation of insurance payments by innovative insurance service has slowed down over time. This was due to the widespread use of the recourse requirements for civil liability insurance by other companies in the market. At the same time, the

Thus, in 2016–2019, the innovative activity of PZU Ukraine increased. The effectiveness of innovations in insurance was reflected in the expansion of the number of customers and the growth of the cash flow of insurance premiums. However, in the context of heightened competition in the domestic insurance market, insurance innovations due to diffusion processes quickly become common practice. The innovation on indemnification un-

Source: Calculated by the authors on the basis of PZU Ukraine Insurance Company (2020) data.



**Figure 4.** Dynamics of some innovation indicators of PZU Ukraine in 2016–2019

der CCLI contracts, applied by PZU Ukraine in 2014, has begun to be used by many competing insurers in this segment of the insurance market, as evidenced by the information in Appendix A. But while the intensity of cash inflows from the implementation of innovation services slows down over time, the improved process of its provision remains effective. This means that the permanent

innovation of insurance companies is the key to ensuring their efficiency and competitiveness in the long run. At the same time, the overall level of innovation development of the insurance market is directly determined by the innovation of its individual participants, which should focus the attention of the researchers on the innovation processes taking place in insurance companies.

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## CONCLUSION

The literature review showed the predominance of fragmentary studies on the innovation development of the insurance market in Ukraine. The analysis confirmed that leading companies are actively innovating, which allows them to accumulate the largest amounts of insurance premiums and attract customers. However, most of the innovations they introduce are incremental and combinatorial, and alternative channels of interaction with customers are still poorly used, which indicates their insufficient innovation potential. For the innovation development of their internal business processes, it is necessary to more actively use third-party experience based on the concept of open innovation, especially since the insurance market is gradually beginning to form the InsurTech sector.

Given that the introduction of innovations is one of the main development indicators of a particular insurance company and the insurance market as a whole, a number of indicators have been proposed that will help insurance companies to objectively assess their innovation. It is important that these indicators can be calculated based on their managerial accounting information. Regarding the assessment of the insurance market innovation in general, it is clear that government statistical observations do not provide any information acceptable for the analysis of innovation due to the lack of accurate understanding of financial, in particular, insurance innovations and their types. The analyzed classification features can be used as a basis for forming a framework for assessing innovations in the insurance industry.

The insignificant innovative development of the Ukrainian insurance market by world standards requires adequate support and effective regulation from its new regulator – the National Bank of Ukraine. In this regard, further research should focus on studying the changes that await domestic insurance companies during the implementation of the FinTech development strategy in order to fully enter the European and international insurance markets.

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## APPENDIX A

Table A1. Product and process innovations of TOP10 Ukrainian risk insurance companies (as of mid-2020)

Source: Compiled by the authors.

Insurance company	CCLI*	CASCO**	Medical insurance	Travel insurance	Property insurance	New types of insurance	Sales channels	Communication with customers	Settlement mechanism	Internal processes
1. ARX	All inclusive	6 types of individualized policies	"Medicine without limits"; "Antivirus" insurance				Online CCLI, travel, and antivirus policies; online CCLI agents	Transparent Customer Feedback; Telegram	Online settlement of luggage loss or flight delay risks	
2. UNIQA		Eco-CASCO (for electric cars' owners)	"Payment according to the diagnosis"	"Active recreation" (tourism and sports); "Business" (one policy for the year)		Homeowners' liability insurance	Online CCLI, travel, and apartment insurance; mobile app myUNIQA			Rejection of plastic cards in health insurance
3. TAS Insurance Group	"Complete auto protection"	"Euro- CASCO 5 stars"	"TAS-DOCTOR"		"Complete housing protection"	"Complete business protection" for SMB	Online CCLI, Green Card policies	Viber public account, chatbot	Express payments for CCLI	Electronic document management
4. Arsenal Insurance		CASCO Absolute			Co-branded household appliances insurance programs	Anti-Covid protection for visitors to Ukraine	Online CCLI, travel, and anti-Covid policies; partnership with "KeyCard"			IT-platform "Arsenal Assistance"
5. PZU Ukraine		PZU CASCO Assistance; CASCO without police		Insurance when traveling in Ukraine	Home insurance for travel time	Comprehensive insurance of cyclists; "Small business"			Direct settlement of CCLI by PZU Ukraine	Improvement of tariff policy in CCLI; updating of the survey procedure
6. INGO Ukraine			"World medicine"			Cyber risk insurance; Corona-protection+	Online CCLI, CASCO, travel, Green Card, medical insurance	Viber public account, Telegram	"Conscious protection" (direct settlement by INGO)	Project office; ePortal for intermediaires; engineering center for underwriting
7. VUSO		"Art of safe"					Online CCLI, travel, Green Card, COVID insurance			
8. Alfa Insurance		"CASCO 50/50"	"Give yourself life"		"My apartment" (including solving household problems)	COVID insurance	Online CCLI, CASCO, travel, COVID insurance; mobile app	Telegram-bot	"CASCO optimum" (direct settlement by Alfa Insurance)	
9. ASKA		"CASCO4U"	"Sports support"			Cyber risk insurance	Online CCLI, travel, Green Card, medical insurance			
10. Universalna			"Safe competitions", «Sports protection"	"Gold sport"		COVID insurance	Online CCLI, CASCO, travel, COVID insurance; co-branded loyalty program "Fishka"; mobile app kasko2go			Development center; microservice IT-architecture

Note: \* Compulsory insurance of civil liability of vehicle owners; \*\* Vehicle insurance.