

DOI: [https://doi.org/10.30970/fp.4\(44\).2022.981091](https://doi.org/10.30970/fp.4(44).2022.981091)

JEL Classification: G 22, O14, O33

## PROSPECTS FOR THE USE OF DRONES AND AUTONOMOUS SYSTEMS IN THE PROCESSES OF ASSESSING INSURANCE VALUE AND INSURANCE LOSSES

**KHARCHENKO Anatoliy,**

*PhD in Economics, Associate Professor of the  
Department of Finance and Accounting  
Cherkasy Educational – Scientific Department  
of Ivan Franko National University of Lviv  
ORCID: <https://orcid.org/0000-0002-5832-7714>*

**SHABANOVA Olena,**

*PhD in Economics, Associate Professor of the  
Department of Finance and Accounting  
Cherkasy Educational – Scientific Department  
of Ivan Franko National University of Lviv  
ORCID: <https://orcid.org/0000-0001-9772-6649>*

**HNATYUK Vladyslava,**

*Student of Bachelor's degree,  
Cherkasy Educational – Scientific Department  
of Ivan Franko National University of Lviv*

**SAMOSVAT Olga,**

*Student of Bachelor's degree,  
Cherkasy Educational – Scientific Department  
of Ivan Franko National University of Lviv*

**Annotation.** *The article outlines the use of digital and technological innovations in insurance, updates the use of autonomous systems and drones. The prospects for the use of drones and autonomous systems in insurance during the war and the post-war restoration of the full functioning of the economy of Ukraine have been determined. The use of autonomous systems and drones in various types of insurance has been studied. It was determined at what stages of the insurance product realization technology autonomous systems and drones can be applied, the risks and effectiveness of their application by insurers for the assessment of insurance value and insurance losses are revealed.*

**Key words:** *insurance, technology, drone and autonomous system, InsurTech, assessment, sum insured, insurance loss.*

Over the last three years, digital and the basis of almost all aspects of modern digital technologies and solutions are at life of people and society as a whole, be-

cause they speed up the movement and processing of information and provide opportunities for immediate use of its diversity to improve the quality of life of people and the functioning of business as a whole. Insurers, as a driver of their development, consider first of all the application of digitization solutions, digitalization in most business processes and directly in the technology of insurance service implementation.

Thus, autonomous systems and machines are increasingly entering various areas of business, including those of insurers. Under such conditions, the human factor, which is usually the main cause of errors and accidents, is minimized. Given the growing potential for increased impact of various factors causing increased losses (losses), insurers may be forced to accumulate additional capital for coverage on the one hand, and to determine more accurately, with the help of digital, autonomous systems and drones, details of insured events and liability for them on the other. This therefore leads to changes in insurance coverage, the way they design and distribute products, assess and underwrite risks and manage claims. Among the tools of the digital technology environment and solutions, drones and autonomous systems, which are a prospect for insurance in the near future, are considered in more detail.

In their work, autonomous systems and drones operate using all aspects of data analytics, which includes cloud and fog computing, blockchain, artificial intelligence, telematics, mobile networks, Internet of Things, biometric technologies, big data for image recognition, which allows them to analyze images and videos to identify objects in time and space. As a result, thousands of settlement claims are suspended, resulting in

business downtime and increased customer dissatisfaction, and a decrease in the insurer's reputation, as well as public confidence in the insurance industry as a whole. At that time, if you have drones and autonomous systems at your disposal, they can enter the premises and increase the scale of the affected areas, taking data first-hand, without disturbing or affecting the objects of the insured event. At the same time, the team of experts can stay at a safe distance and review the transmitted videos and photos in real time to assess the impact and extent of the damage immediately.

The systematic use of drones and autonomous systems in the insurance industry significantly reduces the time to process claims, which is a critical factor for people whose property is seriously damaged, and also has a positive effect on the reputation and does not contribute to the loss of trust in the insurance industry.

The use of drones and autonomous systems for preliminary inspection, analysis and evaluation of the object in the fight against fraud is extremely important for the insurance company. They are already effective before the client takes out an insurance policy. Because insurance premiums depend on the level of risk, each feature of the insured property that reduces risk allows property insurance companies to calculate accurate, personalized premiums.

Summarizing the positive impact of the promising use of drones and autonomous systems on the activities of the insurer, key advantages can be identified, including risk reduction, improved data collection and analytics, reduced operational costs, reduced time and accuracy of processing requests, increased speed of assessment and compensation of losses, satisfying customers and improving

image companies Today, effective data collection is, of course, a critical task for competitive, agile underwriters.

### Reference

1. Popova, L.V. (2022) Suchasni tendentsiyi rozvytku tsyfrovyykh tekhnolohiy u strakhuvanni. [Modern trends in the development of digital technologies in insurance]. *Problemy suchasnykh transformatsiy. Seriya ekonomika ta upravlinnya – Problems of modern transformations. Economy and management series*. Retrieved from: <https://reicst.com.ua/pmt/article/view/2022-5-08-02/2022-5-08-02>. [in Ukrainian].
2. Bazylevych, V. D., Prykazyuk, N. V. & Lobova, O. M. (2020) Tsyfrovizatsiya u zabezpe-chenni konkurentnykh perevah strakhovykh kompaniy. [Digitization in ensuring competitive advantages of insurance companies]. *Ekonomika ta derzhava – Economy and the state*, 2, 15-20. [in Ukrainian].
3. Denysenko, M.P. & Korhun, O.P. (2015) Innovatsiyi na strakhovomu rynku Ukrayiny. [Innovations in the insurance market of Ukraine]. *Investytsiyi: praktyka ta dosvid – Investments: practice and experience*, 21, 79-82. [in Ukrainian].
4. Erastov, V.I. (2018) *Internet strakhuvannya na rynku strakhovykh posluh Ukrayiny [Internet insurance on the market of insurance services of Ukraine]*. Candidate's dissertation. Kyiv National Taras Shevchenko University. Kyiv. Retrieved from: [http://scc.univ.kiev.ua/upload/iblock/3d8/dis\\_Erastov%20V.I..pdf](http://scc.univ.kiev.ua/upload/iblock/3d8/dis_Erastov%20V.I..pdf) [in Ukrainian].
5. Il'chuk, V.P., Parubets', O.M. & Suhonyako, D.O. (2018) Innovatsiyini pidkhody do rozvytku rynku kiberstrakhuvannya v Ukrayini. [Innovative approaches to the development of the cyber insurance market in Ukraine]. *Efektivna ekonomika – Efficient economy*, 5. Retrieved from: [http://www.economy.nayka.com.ua/pdf/5\\_2018/5.pdf](http://www.economy.nayka.com.ua/pdf/5_2018/5.pdf) [in Ukrainian].
6. Naumenkova, S.V. & Mishchenko, S.V. (2010) *Rynok finansovykh posluh [Financial services market]*. Kyiv. [in Ukrainian].
7. Nechyporuk, L. (2016) Innovatsiyi na rynku strakhovykh posluh v umovakh merezhevoyi ekonomiky [Innovations in the market of insurance services in the conditions of the network economy]. *Wspolczesne trendy w gospodarce i sektorze publicznym – Contemporary trends in the economy and the public sector*. Opole: The Academy of Management and Administration in Opole, 2.8, 165-174. [in Ukrainian].
8. Pikus, R. & Zakolodyazhnyy, V. (2015) Innovatsiyyny rozvytok strakhovoyi diyal'nosti yak osnova pidvyshchennya yiyi efektyvnosti. [Innovative development of insurance activity as a basis for increasing its efficiency]. *Visnyk Kyyivs'koho natsional'noho universy-tetu im. Tarasa Shevchenka – Bulletin of Kyiv National University named after Taras Shevchenko*. Economy, 3, 72-80. [in Ukrainian].
9. Tkachenko, N. (2022) Spozhyvats'ka loyal'nist' yak marker efektyvnosti strakhovoho biznesu v umovakh didzhytalizatsiyi strakhovoho rynku. [Consumer loyalty as a marker of the effectiveness of the insurance business in the conditions of digitalization of the insurance market]. *Naukovi zapysky Natsional'noho universytetu*

- «Ostroz'ka akademiya». Seriya «Ekonomika» – Scientific notes of the National University "Ostroh Academy". "Economy" series, 26(54), 101–106. [in Ukrainian].
10. Shubenko I. A. (2020) Tendentsiyi didzhytalizatsiyi na strakhovomu rynku Ukrayiny. [Digitization trends in the insurance market of Ukraine]. *Biznes Inform – Business Inform*, 2, 273-279. DOI: <https://doi.org/10.32983/2222-4459-2020-2-273-279>. [in Ukrainian].
11. Lehmann, M. & Eling, M. (2018) The Impact of Digitalization on the Insurance Value Chain and the Insurability of Risks. *Geneva Papers on Risk and Insurance*, 43, 359-396. Retrieved from: [https://www.researchgate.net/publication/321636110\\_The\\_Impact\\_of\\_Digitalization\\_on\\_the\\_Insurance\\_Value\\_Chain\\_and\\_the\\_Insurability\\_of\\_Risks](https://www.researchgate.net/publication/321636110_The_Impact_of_Digitalization_on_the_Insurance_Value_Chain_and_the_Insurability_of_Risks).
12. Tischhauser, P., Naumann, M. & Candraia, A. (Ed.) (2016) Digitalisierung: Der Schweizer Versicherungssektor im Umbruch. *The Boston Consulting Group*. Retrieved from: [http://image\\$src.bcg.com/BCG\\_COM/Report\\_Digitalisierung\\_tcm2040440.pdf](http://image$src.bcg.com/BCG_COM/Report_Digitalisierung_tcm2040440.pdf).
13. Bieck, C. & Cornelius, A. (2014) Winning strategies for insurers. How industry leaders are excelling outside the comfort zone. *IBM Institute for Business Value*. Retrieved from: <https://www.ibm.com/downloads/cas/BWXDNV7Y>.
14. Pandemiya pryskoryla hlobal'nu tsyfrovizatsiyu ta transformatsiyu strakhuvannya. [The pandemic has accelerated the global digitalization and transformation of insurance.] *Forinshurer – Forinsurer*. Retrieved from: <https://forinsurer.com/news/22/07/21/41520>. [in Ukrainian].
15. Hlobal'nyy rynek strakhovykh tekhnolohiy InsurTech do 2032 roku dosyahne \$165,4 mlrd. [The global market for InsurTech insurance technologies will reach \$165.4 billion by 2032]. *Forinshurer – Forinsurer*. Retrieved from: <https://forinsurer.com/news/22/07/12/41470>. [in Ukrainian].
16. Insurtech Trends – Report Bundle (7 Reports). 2022. Retrieved from: <https://www.globaldata.com/store/report/insurtech-trends-bundle/>
17. Datsenko, V. (2022) Armiyi droniv. Yak bezpilotnyky zaminyuyut' artyleriyu, aviatsiyu i katery na viyni v Ukrayini [Armies of drones. How drones replace artillery, aviation and boats in the war in Ukraine]. *Forbes Ukraine*. Retrieved from: <https://forbes.ua/war-in-ukraine/armii-droniv-yak-u-viyni-v-ukraini-bpla-zaminyuyut-artileriyu-aviatsiyu-i-kateri-06122022-10273> [in Ukrainian].
18. Drone technology has dual benefits for insurers: accurate loss adjustments and cover for users. *Life Insurance International*. Retrieved from: <https://www.lifeinsuranceinternational.com/comment/drone-technology-insurers-benefits/>
19. Webster, P. (2022) Drone insurtech: insurance claims investigation from above. *FintechOS*. Retrieved from: <https://fintechos.com/blogpost/drone-insurtech-for-insurance-claims-investigation/>