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Risk prevention and insurance. *Reaching or trespassing the insurance boundaries?*

Insurance presents a well-recognized preventive value. However, in recent times when it comes to the preventive function of insurance, it is about much more and this can be heard in voices of increasing numbers of experts and insurers. Three fundamental motivators prompted the pursuit of this study: {1} dynamic shifts in the risk landscape, {2} emerging technologies facilitating risk prevention, and {3} a perceived regulatory gap in addressing societal needs and technological potentials.

Legal considerations related to the utilization of new technologies in insurance have been extensively discussed, albeit selectively. These discussions have focused on issues such as the policyholder's risk declaration, the potential use of sensitive data for risk assessment, and the automated distribution process (robo-advice). No comprehensive legal analysis of the preventive function of insurance in this context is available. There is a noticeable research and publication gap that should be filled by holistic considerations on risk prevention in insurance, both on the level of private law (insurance contract, duties of the insurance distributors, as well as public law, concerning the supervision over applying the risk prevention measures by the insurance carriers. Finding a new approach that could address the legal challenges is, according to the author, of great importance for the development of insurance as a protection tool for the most imminent social risks. The objectives included in the paper include showing the impact of new technologies on risk prevention, as well as analysis of what the role of the insurer in risk prevention may and should be from the legal perspective, including the potential change of roles in performing the insurance contract. The objectives of the paper involve several aspects, such as whether prevention has the potential to become a distinguished (re-) insurance service, as well as what the boundaries of the insurance contract and insurance business in terms of its compensatory and preventive function are.

Key words: prevention, loss mitigation, good faith, risk management, insurance contract

1. Introduction: context and problem

It is nothing new to claim that insurance has a preventive value. We've all been targeted by campaigns designed to motivate us to avoid risks (e.g., PZU billboards: "don't get killed") or mitigate the loss by getting a discount on a fire extinguisher. However, in recent times when it comes to the preventive function of insurance, it is about much more and this can be heard in voices of increasing numbers of experts and insurers¹. The context of this study is not planted only in theoretical considerations of insurance ideals, but responds to dynamic transformations of technological, social and environmental reality. Three fundamental motivators prompted the pursuit of this study: (1) dynamic shifts in the risk landscape, (2) emerging technologies facilitating risk prevention, and (3) a perceived regulatory gap in addressing societal needs and technological potentials².

Legal considerations related to the utilization of new technologies in insurance have been extensively discussed, albeit selectively. These discussions have focused on issues such as the policyholder's risk declaration, the potential use of sensitive data for risk assessment, and the automated distribution process (robo-advice). No comprehensive legal analysis of the preventive function of insurance in this context is available. There is a noticeable research and publication gap that should be filled by holistic considerations on risk prevention in insurance, both on the level of private law (insurance contract, duties of the insurance distributors, as well as public law, concerning the supervision over applying the risk prevention measures by the insurance carriers. Finding a new approach that could address the legal challenges is, according to the author, of great importance for the development of insurance as a protection tool for the most imminent social risks.

Therefore, the considerations contained herein have several objectives. First of all, the research aims to show the impact of new technologies on risk prevention, and in this context, what the role of the insurer in risk prevention may and should be from the legal perspective, including the potential change of roles in performing the insurance contract. The issue at hand is surely even more complex and involves several aspects, such as whether prevention has the potential to become a distinguished (re-) insurance service, as well as what the boundaries of the insurance contract and insurance business in terms of its compensatory and preventive function are. The aspects related thereto that need to be investigated include also the privacy and ethics, insurance underwriting, including adverse risk selection, the insurance gap, as well as the insurability of risks. Based on the technology and risk landscape the question appears whether the law adequately addresses the changing reality. Thus the ultimate goal is to formulate the *lege ferenda* postulates, specifically the recommendations for the insurance contract, activity, and distribution of the future, sustainable world.

When introducing the problematics of the article, a few fundamental questions should be asked in terms of the legal approach. The first is whether insurance from the legal point of view should be limited to its traditional role of transferring risks or should it also be a prevention tool for the risks

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1. R. Balasubramanian, A. Libarikian, D. McElhane, Insurance 2030 – The impact of AI on the future of insurance, 2021, I. Flückiger, M. Carbone, From Risk Transfer to Risk Prevention How the Internet of Things is reshaping business models in insurance 2021.
 2. The paper reflects the preliminary goals and objectives of the research project that has been recently began at the European Law Institute: „Prevention in insurance”.

it relates to? The other necessary question is whether the disruptive changes of technology are adequately reflected in the legal regulations of insurance processes (contract, activity, distribution) in the context of data management, privacy protection, and loss prevention, and consequently, what the optimal model of insurance in the future is, taking into account the changing risks, development of artificial intelligence, protection of privacy, social structure, and various branches of industries (also these emerging ones). Can business models including prevention, appearing in recent years on the insurance market, be agreed with the existing laws, or do we need to introduce equally disruptive legal changes that recognize prevention as an explicit function of insurance or an admitted separate service to be offered by the insurers?

The notion of risk for the purposes of the paper has been applied following ISO 3100, which recognizes the risk as a combination of the probability and impact (consequence) of a hazardous event on the organization and thus encompasses measures and actions taken in advance to prevent new risks or hinder their development and strengthening. By prevention in a broad meaning, one should understand, though, both the measures aimed at avoiding the materialization of the risk – known as ‘precautionary measures’ – as well as those aimed at preventing (avoiding or diminishing) the consequences of an accident that actually happened, which can also be called the ‘mitigation of loss’. If we look at the goal of preventative actions, which is the ultimate reduction of costs, as well as the unavoidable nature of some of the natural hazards such as earthquakes, volcanos, and hurricanes, it seems that from an economic and axiological point of view, all the above actions could be acknowledged functionally as risk prevention. It is claimed that risk prevention aims to systematically reduce the likelihood of the risk occurring,³ though given the definition of risk, prevention may act on both of the elements, i.e. the likelihood and the impact of an incident. Though, at the level of insurance contract law, they will be treated separately.

2. Data and technology landscape

One of the main pillars of insurance is access to information and data. For this reason, one of the basic paradigms of insurance is the law of large numbers. Risk data is relevant at every stage of the insurance relationship, from risk assessment to loss adjustment, as well as being the basis for the financial stability of the insurance market *sensu largo*. The information and its transparency were already taken into account in the first regulations of insurance, in particular of the insurance contract, and became the foundation of the insurance principles. The legal provisions and the structure of the insurance were developed in 19th/ 20th centuries, one of the main ones being Marine Insurance Act of 1906⁴. The manner of collecting information and the data available to insurers, as well as the method and time of processing thereof presented those days a completely different picture. Now we are faced with the availability of data of different types and from different sources: high-tech sources, including satellite data, generic IT data, or genetic data. Dynamically developing

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3. Eling M., Nuesse D., Staubli J. [2022], The impact of artificial intelligence along the insurance value chain and on the insurability of risks, *The Geneva Papers on Risk and Insurance – Issues and Practice* (2022) 47:205–241 <https://doi.org/10.1057/s41288-020-00201-7>; World Bank Group [2018]. How technology can make insurance more inclusive. <https://openknowledge.worldbank.org/handle/10986/30059>.
 4. K. Malinowska, *Umowa ubezpieczenia w Europie bez granic*, Branta 2008.

science and technology allows data of a completely different type, with a wider range, to be captured, and allows it to be processed in an incredibly fast and accurate way. The factual impact of the new technologies concerning the data collection and processing methods is largely related to such aspects as more precise assessment of risks, finer risk segmentation and pricing, lower operating expenses, and automated interactions with clients, leading to faster payment of claims.⁵

The area where these applications of data collection and processing can play a significant and relatively uncontroversial role is risk prevention. It includes not only the identification of factors that increase the risk of loss events but also the ability to react quickly when there is a chance to reduce their impact. In this regard, the Internet of Things (IoT), advanced image analysis provided by satellites,⁶ or health insurance based on genetic data should be mentioned.⁷ The preventive potential of new technologies is visible in all phases of the insurance value chain. i.e. in the process of product design, where the models to predict the frequency and severity of claims are created, in the distribution and marketing process, as well as in underwriting, where such factors as identification of risky behaviors of insureds in the past can be traced and premium pricing is thus more accurate. Finally, also at the post-contracting stage, when the insured's behaviour can be stimulated by encouraging or imposing good practices on insureds to mitigate loss events, and by predicting the outcome of insureds' behaviors, as a result, or even to track the behavior of insureds by relying on connected devices. The monitoring of driving style by telematics devices, for example, not only serves to assess risk, but has a significant and *ad hoc* influence on the behavioral pattern of a driver aware of the presence of such a device. This means that moral hazards can be reduced.⁸ Data from new sources, better processed and in increased quantities, has the potential to facilitate the implementation of advanced risk management and early warning systems. These, in turn, enable timely interventions to not only reduce the frequency of the event insured, but also reduce the severity of damage when risks materialise. The use of new technologies can therefore help to expand the role of insurance and help transform it from a function of protecting against the consequences of an event insured to predicting and preventing risk materialisation.⁹ This logically leads to a model whereby clients pay not 'just' for premiums to be compensated for damages they might incur, but for services that predict and help prevent that risk. "Insurers of the future will pay more of a risk avoidance role and less of a risk mitigation one."¹⁰

The issue of a paradigm shift with the purpose of insurance services and their added value seems to be a necessary development trend. This is pointed out not only by insurers themselves, who

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5. IAIS. (2018), *Issues Paper on Increasing Digitalisation in Insurance and Its Potential Impact on Consumer Outcomes*, <https://www.iaisweb.org/page/supervisory-material/issues-papers>; Access 15.12.2023; IAIS (2020), *Issues Paper on the Use of Big Data Analytics in Insurance*, (February 2020). <https://www.iaisweb.org/page/supervisory-material/issues-papers>; access 25 May 2023; Malinowska K. (2019). Ocena ryzyka w ubezpieczeniach a nowe technologie w kontekście zasad umowy ubezpieczenia, *Prawo Asekuracyjne* 2/2019.
 6. Insurance Institute Of Canada, *Ai And Big Data. Implications For The Insurance Industry In Canada*, 2021.
 7. https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/ga2017_globalageing_genetics_and_life_insurance_0.pdf. Access 15.12.2023
 8. R. Swedloff, *The New Regulatory Imperative For Insurance*, *Boston College Law Review* 2020.
 9. B.Keller, *Promoting Responsible Artificial Intelligence In Insurance*. The Geneva Association—International Association For The Study Of Insurance Economics, Zurich 2020.
 10. McKinsey, *Digital insurance in 2018*; OECD (2020). *The impact of Big Data and Artificial Intelligence (AI) in the insurance sector, 2018*.

see it as a new business model, but also by insurance researchers, economic trendsetting organizations, and think tanks such as the Geneva Association, etc.¹¹ Though the beginning of the shift from risk transfer to risk prevention is naturally dominated by discussions of its profitability, judging it as a threat or an opportunity requires looking at both sides of the coin. However, no doubt perceiving the shift to risk prevention as a profitable business model applied as a nice thing to have by successful insurers cannot be the ultimate goal if insurance is to play a social role. Otherwise, the social risk of making the risk prevention ‘exclusive’ (accessible for those who have access to the internet and IoT devices) rather than ‘inclusive’ is on the horizon.

It is thus crucial to answer the question of what is the function of risk prevention within the insurance service. Can we acknowledge in the current state of the regulatory framework that insurers do not just give added value to the coverage, but are obliged to cooperate with the insured in that respect? If not, what should be the optimal model of risk prevention that would ensure insurance becomes an inherent part of the sustainable development of societies?¹²

3. Risk landscape and insurance functions

One of the major contexts, determining the objective of the research is the actual risks’ reality. As many recently published Reports show, during the latter half of the 20th century, there was a phase marked by relatively stable socio-economic development. However, the 21st century has ushered in a period characterized by heightened complexity, uncertainty, and vulnerability. This shift is attributed to geopolitical power dynamics, swift technological advancements, growing interconnectivity, and the consequential spread of risks. As early as 2003, the Organisation for Economic Co-operation and Development (OECD) underscored the emerging significance of systemic risks, specifically citing the interconnectedness of global supply chains and the impact of climate change on the future landscape¹³. There is no doubt that the risks follow both economic and technological trends, as well as environmental changes. For hundreds of years, the insurers embraced many emerging risks, the last 20 to 30 years have seen, however, a dramatic change in the format, purpose, and formula of insurance, both non-life and life, to react to the increasing need for covering new types of risks or augmented risks. However, as the global risks reports show, the insurance coverage gap does not diminish.¹⁴ This causes the ever increasing significance

11. See two recent Reports published by Geneva Association: Kai-Uwe Schanz, *The value of insurance in a changing risk landscape*, Geneva Association, 2023 and I. Flückiger, M. Carbone, *From Risk Transfer to Risk Prevention How the Internet of Things is reshaping business models in insurance* 2021.

12. A. Capiello, *The Digital Revolution Of Insurance Business Model*, American Journal Of Economics And Business Administration 2020, Volume 1:1.13; Optic 2020. *Artificial intelligence solidarity and insurance in Europe and Canada. Roadmap for international cooperation*, <http://www.optictechnology.org/images/files/Full-Report-AI-Solidarity-and-Insurance-HTF-ENG-compressed.pdf>; OECD, *Digital Security Risk Management for Economic and Social Prosperity: OECD Recommendation and Companion Document*, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/9789264245471-en>. 2015.

13. Kai-Uwe Schanz, *The value of insurance in a changing risk landscape*, Geneva Association, 2023.

14. World Economic forum [2022] *Global Risks Report*, <https://www.weforum.org/reports/global-risks-report-2022/> Access 15.12.2023; T. Varney [2018], *The Changing Risk and Liability Landscape: New Tech, New Loss Scenarios*, | October 19, 2018, <https://www.insurancejournal.com/news/national/2018/10/19/504988.htm>;

of adequately addressing the issue of data processing in insurance that could eventually reverse that trend. At the time, however, when the insurance science and regulatory framework were emerging, some of these risks not only seemed unimaginable, but actually did not exist, or at least were different as regards type, level, and geography¹⁵. For the same reason, they were anticipated neither by insurers, nor by the regulators.

Having said the above, we have to bear in mind that insurance is traditionally a form of risk management¹⁶ and now, insurers are risk managers of modern world. The expertise built by the insurers has always predestined them to go beyond purely compensatory aspects. One of the auxiliary but important functions of insurance is undoubtedly risk prevention, as it is considered to be the most rational method of loss control. Insurance methodology even points out two basic but equal functions of insurance – compensation, and prevention. It is also argued that conducting an insurance business without prevention would be unprofitable. Through prevention, an insurer's claims process can become more sustainable and sometimes also becomes a factor of competitive struggle in the insurance market.¹⁷ However, the importance of the preventive function is not only due to the above competitive, market-based factors, but also comes from the social role played by insurance.¹⁸ In this context, it can complement the social and organizational role played by states, especially in the area of catastrophic and health risks.

Though this is undoubtedly crucial for grasping new opportunities, it is claimed that going beyond risk transfer towards risk mitigation and prevention will be a critical factor for insurers and customers in the riskier world.¹⁹ Reports in the business press show that new technologies and data capabilities have the potential to reduce claims payouts²⁰. This trend and technical possibilities give the insurance necessary power to effectively mitigate or eliminate risk by (1) preventing an insured event from happening, by (2) providing warnings before an insured event is likely to happen, enabling the insured to take action themselves, as well as by (3) taking action after the event happens, but mitigating the consequences thereof, by reducing or avoiding losses.

15. A.Schwedel, M. Judah, G. Goosens, *The Future Of Insurance: As Risks Mount, Insurers Aim To Augment Protection With Prevention*, 2021 Bain&Company Inc.

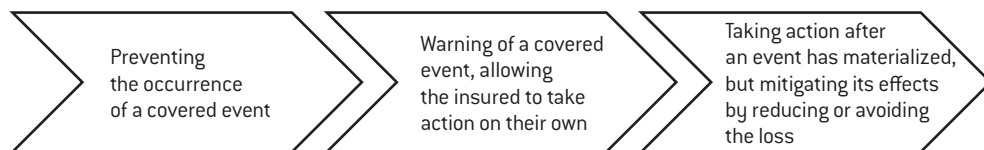
16. E. J.Vaughan, *Fundamentals of Risk and Insurance*, J. Wiley & Sons Inc., New York.; Williams et al. 1997. *Risk management and insurance*. McGraw-Hill Professional.

17. T. Sangowski, *Ubezpieczenia Gospodarcze*, Warszawa 2001, p. 100–101.

18. B. Lurger, The „Social” Side of Contract Law and the New Principle of Regard and Fairness, in A. Harthkamp, M. Hessenlink (eds) *Towards European Civil Code*, 2004, Kluwer; T. Bednarczyk, in: *Ubezpieczenia*, ed. W. Ronka-Chmielowiec, CH Beck 2016, p. 51.

19. M. Boyer, E. Mills, E. Lecomte, *From Risk to Opportunity: How Insurers Can Proactively and Profitably Manage Climate Change*, 2006 <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.174.1451&rep=rep1&type=pdf> access 25 May 2023.

20. ADB and OECD. [2020]. *Leveraging Technology and Innovation for Disaster Risk Management and Financing*. Manila/Paris.; CEOS. [2015]. *Satellite Earth Observations in Support of Disaster; Risk Reduction*, European Space Agency – Earth Observation Graphic Bureau; KPMG [2020], *Frontiers in finance: From Protection to Prevention*.



Source: by author

4. Risk prevention in the regulatory framework

What is missing in this picture seems to be the legal framework enhancing the new potential that may be played by insurance as a result of the technological revolution. The contemporary doctrine is nearly silent about the legal consequences of the insurance prevention for the nature and function of insurance.²¹ This reality has not been so far described in the context of insurance contract principles and that subject has been analyzed mostly in terms of a new business model that is applied by insurers only when it may bring more profits. In fact, insurance prevention has its roots in insurance tradition and is indeed an extremely complex issue, requiring the social, legal, and technical-insurance contexts to be considered simultaneously.²² The legal questions are still waiting for the answers.

Thus, though, both the doctrine and even sometimes legislation entrust insurers with a preventive function, the legal regulations in that respect do not go much further than that general function (such as financing road safety campaigns or funding fire extinguishers, etc.) and are not expressed on the level of the individual insurance relations, neither are enforceable in practice.²³ Therefore, it is necessary to analyse the current and potential future legislation in the context of the rules of concluding and performing the insurance contract in the face of changing risks and the use of new technologies, and eventually to propose a new legal paradigm thereof. The regulatory framework within the context of a broad meaning of prevention should concern all phases of the insurance value chain – from contracting to payment of compensation.

4.1. The business model or insurance principle?

Considerations concerning the regulatory framework should start with the analysis of how insurance prevention copes with the fundamental insurance principles. Indeed, we should not be complacent about the fact that the new technical capabilities are great insurance facilitators and have the power

21. Older jurisprudence on this subject include J. Szpunar, *Przesłanki Prewencji ubezpieczeniowej*, „Ruch Prawniczy, Ekonomiczny i Socjologiczny” nr 1, <https://repozytorium.amu.edu.pl/handle/10593/19461>; W. Mogiński, *Prewencja Ubezpieczeniowej. Zagadnienia Prawne*, Warszawa 1980; Schlesinger, Harris, and Emilio Venezian, *Insurance Markets with Loss-Prevention Activity: Profits, Market Structure, and Consumer Welfare*, *The RAND Journal of Economics*, vol. 17, no. 2, [RAND Corporation, Wiley], 1986.

22. T. Sangowski, *Ubezpieczenia Gospodarcze*, Warszawa 2001, p. 102–103.

23. This lack of comprehensive approach has also been stressed by W. Mogiński, *Prewencja – niedoceniana funkcja ubezpieczeń* in: *O dobre prawo dla ubezpieczeń*. Księga Jubileuszowa Profesora Eugeniusza Kowalewskiego, red. E. Bagińska, W. Mogiński, M. Wałachowska, Toruń 2019.

to change the potential of insurance in the context of risk management²⁴. Pausing on that would mean that the preventive activity of insurers can remain at the level of just a modern business model, used by insurers only when it can bring measurable profits. We can find this in such statements as that by Andrea Keller, *Head Automotive & Mobility Solutions, Swiss Re*, who says that “*technological possibilities are there, but not used beneficially for preventing risks.*”²⁵

If we, however, agree that prevention is becoming a social necessity, it entails the necessity to verify whether the general principles of insurance are sufficient for deriving the preventive obligations of both parties. If not, should we perhaps create a new paradigm of insurance if it is necessary, and give insurance a chance to play an even more important social role than so far? The problem for detailed consideration is also whether changing the business model of insurance and its paradigm can be done within the nature of insurance, or whether we are facing the beginning of or the emergence of a new risk management tool that will co-exist with insurance, but satisfying other needs, or will even replace insurance in the foreseeable future. Such considerations appeared especially in the context of blockchain, which, however, is still awaiting to prove its value in general insurance.²⁶ It seems important to re-imagine this current and potential future reality in terms of the principles of insurance.

One of the concerns of applying new technologies in insurance is the risk prevention possibilities that are now increasingly in the hands of insurers, applied to risk assessment at the contracting stage and the loss adjustment phase. So far, it seems that the technology is applied by the insurers mainly to check up on the policyholders’ intentions and proper behavior, rather than to prevent the event insured. The insurers still seem to play mainly the role of an indifferent observer, even though they are technically capable of interfering and increasing the chances of preventing the event insured or mitigating the loss triggered by the event insured. With this in mind, the technology raises questions about the role of the insurer in the insurance contract, or even broader – about the role of insurance in the risk management process.

These questions are about the compliance of using new technologies in line with the established principles of insurance contracts, such as good faith, reasonable expectations, and indemnity. They also pose concerns about whether new tools and technical possibilities can naturally create new obligations for insurers that would satisfy these principles. This concerns not just one specific jurisdiction but is supranational and interdisciplinary, and impact all the legal systems and insurance cultures. It seems significant not only for the insurance industry. As insurance plays a vital role in enhancing new industries and ensuring stability in all sectors, the changing function of insurance will undoubtedly have an impact on the transition of economies, especially those sensitive from an environmental and social point of view.

24. According To The Definition of Risk after P. Hopkin, C. Thompson, [2022] *Fundamentals Of Risk Management*, The Institute of Risk Management, 2022 London, p. 17.

25. I. Flückiger, M. Carbone, The Geneva Association. *From Risk Transfer To Risk Prevention – How The Internet Of Things Is Reshaping Business Models In Insurance*. May 2021.

26. The World Bank Group, 2018; How technology can make insurance more inclusive. <https://openknowledge.worldbank.org/handle/10986/30059> Borselli, Smart contracts in Insurance. A Law and Futurology Perspective; Insuretech: A legal and Regulatory View 2019.

4.2. Prevention versus transparent communication

At the time of the first insurance legislation, it was not possible to predict how quickly insurance data would be processed, what the cross-referencing and merging of data could be, or what the sources of the data might be. This transformation bestows insurers with a notably advantageous position, in stark contrast to the era when insurance laws were originally formulated. In contemporary times, insurers not only possess the data they can solicit from clients, but also have access to information from various sources, often without the client's involvement or awareness.²⁷ The application of new technologies means that knowledge of risk, which was traditionally in the sole hands of the policyholder as the 'risk owner', and which was mirrored in the law of insurance contracts (such as Art. 17 MIA cited in Section 2), has now largely passed into the hands of insurers. We can observe the rapidly decreasing role of the insured as the only source of obtaining insurance information by the insurer and strengthening the role of the external sources of information mentioned above.²⁸ This comes from the fact that, in an increasing number of insurance products, the role of the policyholder is limited to merely granting consent to use these sources of data collection, which are anyway in the hands of the insurer. This new reality has been noticed by the regulators and addressed in draft laws concerning the use of artificial intelligence²⁹, as well as proposing the concept of open insurance data³⁰, but not in the context of the new potential of the insurance 'concept'.

If we assume that prevention is only perceived as actions directly preventing or mitigating the loss, then we will probably not find satisfactory solutions in the positive law regulations; neither will we find a balance between the parties as regards the preventive (precautionary) measures to be taken. Better outcomes can be achieved if we assume that preventive measures may include both preventive actions, as well as communication between the parties, with the objective of risk prevention. Tackling just on the related issues, i.e. the obligations of the parties to the insurance contract, the question appears whether the insurers should be obliged to communicate (reveal) information on the risk they possess to the insured, with the potential to prevent the event insured or to mitigate its consequences. Prevention indeed, should be understood not only as a reflection of the indemnity principle, but also as an emanation of good faith, where both parties are obliged to maintain a high level of transparency concerning the risk being subject to the contract. It may be of importance especially where new technologies give a high level of risk prediction in real-time.

If we confront the opportunities offered by the use of new technologies with the parties' risk disclosure obligations contained in the insurance contract legislation of the European countries (UK, Germany and France), as well as PEICL, the internal contradiction becomes all too apparent.

27. B. Keller, Promoting Responsible Artificial Intelligence in Insurance. The Geneva Association—International Association for the Study of Insurance Economics, 2020.

28. A distinction can be made in this regard between new data collection processes („Automatic collection of data from sensors and readers in a factory, laboratory, medical or scientific environment”) and the collection of source data for input into a computer. Acquired data can include both traditional data and new, non-traditional data and imputed data; replacing missing or inconsistent data items (fields) with estimated values.

29. Proposal for a Regulation of the European Parliament and of the Council laying down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts, Com/2021/206 Final

30. Eiopa 2021, Open Insurance: Accessing And Sharing Insurance-Related Data. Discussion Paper.

The 'average' European law on insurance contract still provides for non-symmetrical information duties for both parties at the pre-contractual stage. While the policyholder is burdened with sharing the information on the risk,³¹ the insurer's obligations are limited to such formal information as details of the insurer or of the terms of the insurance product. These provisions do not take into account the changing landscape, where the insurer tends to know more about the risk than its actual owner.

This view is not altered by the huge step forward that has been taken at the initiative of the EU in terms of the transparency requirements imposed on insurers. The basic concept is still that it is the responsibility of the policyholder to declare the risk, even if it is done with the help of questionnaires produced by the insurers acting prudently. According to the legal provisions regulating insurance contracts in countries like Germany, the UK, France and others, the insurer still seems to be a passive addressee of the information delivered by the policyholder, while in reality it is able on its own, with the help of the new technologies, to gain access to the risk data (such as risk of the traffic accident assessed based on the driving style of the car owner, or the health risks basing on the lifestyle measured by wearables, etc). While in the 18th century the concept of the risk declaration was justified by the difficulty of access to information on risk by the insurer, today it has become irreconcilable with both the degree of specialization and expertise of insurers, the widespread access to risk information, and the general trend of introducing protective norms towards the insured.³² These considerations may lead further into an area beyond the assessment of risk at the pre-contractual stage, for example, in terms of how risk can be prevented from materializing based on data acquired by the insurer through new technologies, and whether the insurer should have any duties on sharing information in that respect.

Even if we limit the analysis to risk disclosure, in the opinion of the author, it is no longer possible to perceive it as a one-sided obligation of the policyholder. Recalling that an insurance contract is about managing the risk of the insured, the central point of insurance contract laws should be a clear and transparent picture of the risk, especially as we have to bear in mind its 'non-tangible' nature compared to other types of contracts, where the subject of the contract is 'just' a promise of payment in case the risk materializes. Thus, the purpose of insurance contract laws has always been to ensure that the contracting parties are not misled as to the features of the risk covered and the terms of its coverage. It is, therefore, necessary that obligations concerning the risk disclosure are reciprocal if they are to play a preventive role. Insurers are not obliged to share risk information, even when it might be crucial to mitigate or prevent a potential damageable event. The only instrument mentioning such a possibility, though in a very general way, is PEICL³³ – being unfortunately still merely a soft law. It refers to information on the performance of insurance contracts, where the insurer, should, at the demand of the policyholder, report on all matters relevant to the performance of the contract. If there are no explicit information duties in this respect,

31. See, for example, the provisions of the French Insurance Code (Code des Assurances, article L113); the German Insurance Contract Law (Versicherungsvertragsgesetz, sec. 19) and the Insurance Act 2015, Part II, Section 3.

32. *Keyser Ullmann SA v. Skandia (UK)*, 1987 2 WLR 1300. K. Malinowska, Transparency in an insurance contract – transformation of the principle of highest trust into the right to information in B. Gnella, M. Szaraniec (eds.), *Information in business insurance law* (Lex Wolters Kluwer 2015).

33. Principles of European Insurance Contract Law; <https://www.ius.uzh.ch/de/research/projects/peicl/peiclin-fulltext.html>; Access 15.12.2023

the question to answer is whether we can place these duties within one of the insurance principles, such as reasonable expectations or good faith. There are clear gaps that could be filled by expanding at least the information duties of the insurer having relevant information.

And this is just a start. Further questions appear, such as whether and to what extent the insurer is obliged to undertake prevention actions, and to what extent and if the insurer should be obliged to actively participate in insurance prevention in a form that enables to limit not only the loss as consequences of an event insured, but also to limit the probability of that event taking place.

4.3. Precautionary insurance duties and prevention

As has been noted at the beginning, for the purposes of this research prevention has been approached in a broad way, i.e. including both the circumstances before and after event insured leading to avoid or at least diminish the loss. In that context, the insurance precautionary duties of the insured are of significance.

Precautionary actions of the policyholder have been regulated by several insurance laws, however, in an inconsistent manner. As a so-called 'best solution', provisions of PEICL can be provided. PEICL, Article 4:101 says that "A precautionary measure means a clause in the insurance contract, whether or not described as a condition precedent to the liability of the insurer, requiring the policyholder or the insured, before the insured event occurs, to perform or not to perform certain acts. A 'precautionary measures' clause that allows an insurer to refuse to pay all or some of a claim for non-compliance with it, is only effective to the extent the loss was caused by the policyholder or the insured." The above concept of precautionary measures taken before the materialization of the risk has been regulated only in a few countries. It is so in Finland and Sweden, where certain obligations were introduced by law; the insured must comply with the precautionary guidelines. Comparably, the German and Swiss laws focus on certain actions to be taken by the insured before the event insured occurs, but only if they were provided for in the contract.³⁴ Many more insurance laws provide for the statutory obligations of *sauvetage*, in case the risk materializes (after the event insured occurs). Such a rule has been provided under Spanish,³⁵ Polish, Belgian, French, and Dutch law.³⁶ For example in French law, the insurer can stipulate that cover will only commence if the policyholder implements certain 'preventive measures' or can provide for a reduction of cover to the extent that the insured's non-compliance with a 'preventive measure' is causally linked to the loss. The insured's due diligence, negligence or intent is irrelevant, though it cannot unilaterally terminate a contract for non-compliance with the above obligations.³⁷ More complicated regulations are present in the English law, where the obligation of precautionary measures is represented by a concept of promissory warranty which is a promise by an insured about future

34. J. Basedow et al.. Principles of Insurance Contract Law, Otto Schmidt 2016, p. 188

35. In Spain, the Insured or the Policyholder must use the means at their disposal to mitigate the consequences of the event insured.

36. J. Basedow et al.. Principles of Insurance Contract Law, Otto Schmidt 2016, p. 189.

37. The French Position: Professor Anne Pélissier, Montpellier I University, Montpellier, France, Aida 2012, Precautionary Measures, p. 15.

conduct, or that a state of affairs will continue after the contract is made. It is a condition precedent to liability and must be literally, strictly and exactly complied with.”³⁸

Summing up, according to the insurance contract laws, most precautionary measures encumber the policyholder, that should behave as a ‘prudent uninsured’, take reasonable precautions, take all reasonable steps to safeguard the object of insurance and should aim at minimizing the loss by acting to reduce the financial implications of a loss. On the other hand, despite the insurer enjoying much better access to information on the risk being imminent, it is obliged ‘just’ to reimburse the costs of mitigating the loss [after the event insured took place]. Considering this perspective, it appears essential to begin interpreting insurance contract laws and legal provisions related to the distribution of insurance products and the conduct of insurance activities in a manner that acknowledges the present technological landscape and the capabilities of insurers. Insurers could be allowed and obliged to actively engage in risk prevention, and it is important to determine the extent of their responsibility in this regard. Alternatively, explicit legal provisions could be introduced to address this objective³⁹.

4.4. Insurance activity regulations

The insurers stress that their role in risk prevention consists of supporting risk mitigation by their policyholders via improvements in the effectiveness of communication tools, combined with increased access to broadband internet connections and smartphones. For example, insurers are creating smartphone apps that allow their policyholders to access information on risk reduction measures that they can take, as well as receive early warning information in the event of an imminent risk. Several insurers have begun to encourage the use of connected devices such as water leak detectors and smart smoke detectors among their policyholders, done by offering discounts on premiums for policyholders willing to install these devices and share the generated data with insurers. An increasing number of insurance companies are offering their policyholders smart home-connected device packages as a risk mitigation service.⁴⁰ Is this all addressed adequately in law in a way that would at least not create a barrier?

Answers about the role of law in terms of preventive possibilities of insurers are being sought primarily in the regulations concerning insurance activity. Some analysis has been done based on the solvency rules, specifically taking the Solvency II directive as an example. As Solvency II states, “In order to promote good risk management and align regulatory capital requirements with industry practices, the Solvency Capital Requirement should be determined as the economic capital to be held by insurance and reinsurance undertakings (...). That economic capital should be calculated on the basis of the true risk profile of those undertakings, taking account of the impact of possible risk-mitigation techniques, as well as diversification effects. In addition, ‘risk-mitigation techniques’ have been defined and mean, “all techniques which enable insurance and reinsurance

38. The English Position: John Habbergham, Myton Law Ltd, Lawyers, Hull, England, Aida 2012, Precautionary Measures, p. 11

39. Basedow Et Al [2016]. Principles Of Insurance Contract Law, Otto Schmidt, P. 261.

40. ADB, OECD [2020]. Leveraging Technology And Innovation For Disaster Risk Management And Financing. Manila/Paris; [Meagher 2019]; Schlesinger, Harris, And Emilio Venezian. “Insurance Markets With Loss-Prevention Activity: Profits, Market Structure, And Consumer Welfare.” *The Rand Journal Of Economics*, Vol. 17, No. 2, [Rand Corporation, Wiley], 1986, Pp. 227–38, <https://doi.org/10.2307/2555386>

undertakings to transfer part or all of their risks to another party.” Risk mitigation techniques form a part of the risk management system in insurance companies.⁴¹ This, however, seems to be applied at a general level of managing the insurer and does not refer to actions within individual insurance contracts. It is regulated, therefore, solely in the context of solvency requirements.⁴²

Only a few examples of insurance laws in Europe proclaim expressly the preventive role of insurance. Those include Polish and Hungarian laws. It has been stated in the recitals of the Hungarian insurance law, “In the interest of protecting the interests of policyholders, promoting self-support, enhancing confidence in insurance and insurance companies, strengthening the role of the insurance industry in general and of the insurance companies in the nation’s economy, enhancing the feasibility and reliability of the insurance industry, as well as the guarantees for insurance services, (...) promoting the role of insurance companies in preventing damage; furthermore, taking into account the requirement of compliance with the legislation of the European Union and that insurance industry is to achieve a level in terms of governing principles, quality and security it provides to market players (...), Parliament has adopted the following act” (Hungarian Law on Insurance Business; Act LXXXVIII of 2014). Another example is the Polish insurance law, which sets out that activities directly related to reinsurance activity are, in particular, the actions performed in the field of statistical consultancy, actuarial consultancy, risk analysis, research for the benefit of clients, investing funds, as well as activities preventing the occurrence or reducing the effects of an insured event, or financing such activities from a prevention fund, as well as preventing the occurrence or reducing the effects of random events and financing these activities from the prevention fund (Polish Insurance and Reinsurance Act).⁴³

Similarly to Solvency II, making preventative actions based on new technologies a part of the insurance activity is not, however, a rule at a global level. Quite to the contrary, some authors suggest the existence of insurance regulatory constraints in this respect, saying that, “the use of emerging technologies and innovation in insurance underwriting, exposure management, distribution, and claims settlement may be somewhat constrained by insurance regulatory requirements in many economies,” adding that “current insurance regulations sometimes pose a barrier to leading experiments in prevention solutions, leaving insurers at a competitive disadvantage.”⁴⁴

As a result of the overview made, insurers seem to be either forbidden or, at least not encouraged or obliged by insurance law to take precautionary or mitigative actions, or to support the policyholder in undertaking them. Given the restrictive nature of the norms governing insurance business, the lack of explicit provisions indicating that an insurer can perform preventive activities not just in general (such as the billboards financing), but at the level of an individual insurance

41. Directive 2016/97 of the European Parliament and of the Council of 20 January 2016 on insurance distribution (recast), and Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of insurance and reinsurance (Solvency II).

42. Articles 100 and 108 of the Solvency II directive. When Calculating The Solvency Capital Requirement, Insurance And Reinsurance Undertakings Must Take Account Of The Effect Of Risk-Mitigation Techniques, Provided That Credit Risk And Other Risks Arising From The Use Of Such Techniques Are Properly Reflected In The Solvency Capital Requirement.

43. Art. 278. 1. An Insurance And Reinsurance Undertaking May Establish A Prevention Fund Of An Amount Not Exceeding 1% Of The Premium Written At Equity In The Last Financial Year; See also B. Mrozowska-Bartkiewicz, K. Kędziora, Fundusz prewencyjny w działalności ubezpieczeniowej, *Prawo Asekuracyjne* 1/2021

44. I. Fluckiger, M. Carbone, *From Risk Transfer to Risk Prevention*, Geneva Association 2021

contract, or even a service per se, but linked to insurance, should be considered a serious obstacle to the development of this path.

5. Precursory insurance products

One of the specific questions appearing based on the preliminary analysis is whether the preventive function should be attached to all types of insurance or should it apply only to some of them (for example life or non-life insurance)? The first symptoms of the changing paradigm of insurance may be seen in both existing and emerging or increasing risks as cyber, health, or climate risks.

As regards cyber insurance, the main reason for this is that their loss potential is currently estimated at around a trillion dollars and is on the increase, making cyber risks hardly insurable on a big scale. What is more, cyber insurance is closely interrelated with other insurance products, where the cyber risks appear 'unwillingly', though indirectly. According to the Geneva Association: *"The new role of cyber insurance is driven by three market needs: (1) increasing attractiveness of cyber insurance for customers; (2) improving profitability through loss reduction/prevention and customer retention; and (3) broadening knowledge about cyber risk."*⁴⁵ The approach to risk management in this area is noteworthy, where insurers have understood that, without a proactive approach to risk prevention and loss mitigation and participation in the *de facto* management of these risks by policyholders, there can be no question of the viability of these products and the effectiveness of managing these risks in general. Insurers understand that they should lead the way forward by developing the most effective techniques — from proactive monitoring to incident response — to fight cyber threats. In protecting their own assets and systems, insurers can build trust and confidence with consumers.

A similar approach should be taken about health insurance, in particular with reference to genetic data or genetic research. The latter seems to be particularly developing quickly. Although most of the legal regimes forbid insurers to seek genetic medical data, the problems attached to the reliability and certainty of genetic data raise questions about insurance risks, thus, fulfilling a special category of insurance prevention. The increasing volume of these data and the possibility of automatically processing and grouping them together means that these data can fulfill a particular preventative function.⁴⁶ Though, problematic ethical issues and issues related to the processing of personal data must also be taken into account at all stages.

6. Conclusions

Insurance is built on a foundation of trust between the insurers and the customers. This fundamental promise of protection and reliability cannot be compromised. The worldwide insurance

45. Geneva Association, Cyber insurance as a risk mitigation strategy; https://Media-Publications.Bcg.Com/Pdf/Cyber_Insurance_As_A_Risk_Mitigation_Strategy.Pdf 2018.

46. Ernst & Young (2020), NextWave insurance: personal lines and small commercial. How insurers must change to thrive in the next normal.

protection gap which has been noticed in recent years⁴⁷, is a good place to start strengthening that trust. Based on this premise, it may be claimed that the obligation on insurers to be actively involved in preventive (or so-called mitigation and precautionary measures) results from the above grounds. If we dive into the roots and essence of insurance principles, which are fairness, transparency, consideration for the interests of the other party, and predictability, we will have to conclude that the role of insurance, as seen through the prism of legal policy and these fundamental principles, allows it to cover not only the transfer of risk, but also the active prevention of the risk insured as a service attached or even separate from the insurance contract, but still related to the insurance activity.

Enhancing the prevention role of insurance may have such an effect that many uninsurable risks become insurable thanks to the technical possibility to manage, control and prevent them. It has an obvious significance for inclusivity becoming not just a postulate. This concerns both health and home insurance (with the help of the IoT), as well as agricultural and other climate risks (with the help of geospatial data)⁴⁸. This trend has become common in various types of insurance and is claimed to be a new business model in insurance, one based on new types of risk assessment and behavior-based pricing.⁴⁹ An equally important trend resulting from the possibilities offered by technology is preventing risk as part of a holistic risk valuation approach by insurers.⁵⁰ This holistic approach, known already as the 'risk prevention framework' gives the potential to change risk management processes both within insurers as well as insured organizations.

Risk prevention is also directly linked to sustainable development, both on the level of the single insured, as well as on the level of societies. The preventive approach may result in preventing avoidable economic losses and reduce clients' risk exposure. This, in turn, brings benefits to all stakeholders – insurers, policyholders, and society (including state expenses for medical care, social security, catastrophic funds payments, etc.). In fact, a better understanding of a policyholder's risk exposure can help all the parties involved. Insurers make data-informed decisions and define more appropriate policies, and in this way, they limit their own risk exposure and can, in turn, offer more competitive products. Clients are incentivized to improve internal risk management, in which improvements and good practices are acknowledged and reflected in the insurance premiums, or even in the insurability of so far uninsurable risks. As a result, society and stakeholders as a whole are less exposed to risks. Over time, businesses can become more economically, socially, and environmentally sustainable.

In conclusion of the considerations in this paper, the author states that risk prevention in insurance should go beyond the concept of a business model and should become an inherent part of the underwriting and distribution activities in insurance. In consequence, we should get

47. Geneva Association, Understanding and Addressing Global Insurance Protection Gaps, 2018, https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/understanding_and_addressing_global_insurance_protection_gaps.pdf; Access 15.12.2023

48. Some ethical questions can be raised in relation to health insurance – what kind of data can be used for what purpose, whether data can be cross-referenced, and whether prevention plays a role of one of the ultimate goals.

49. R. Swedloff, The new Regulatory Imperative for Insurance, Boston College Law Review 2020.

50. A.D. Little, Loss Prevention Framework For Insurance Companies. An Innovative Approach To Measuring And Controlling Risk 2018. https://www.adlittle.com/sites/default/files/viewpoints/Adl_Loss_Prevention_Framework_For_Insurance_Companies.Pdf. Access 15.12.2023

used to the approach according to which the heart of insurance is not only risk transfer and compensation, but also risk prevention as its equal function and, additionally, that insurers as risk managers are allowed to render risk prevention services as a separate service from insurance (e.g. in case of uninsurability of the risk). This can be perceived as an element of social inclusivity. Thus, the most important challenge for the legislator can be the shift from a product-centric to a customer-centric approach, allowing to offer not just insurance coverage, but also services of prevention and mitigation as part of the insurance or as a separate service.⁵¹ This seems possible, especially given that the insurers have expertise that no one else has, making them valuable partners in the industrial 'ecosystems' that are evolving to offer consumers both loss compensation and risk prevention services.

However, realizing these goals in the form of contractual provisions and industrial standards confirmed by court decisions is a very long way, in civil law systems in particular. And it does not seem that society has such a long time given the dynamics of risk development. This means that legislative intervention is the only way forward. The law should make it possible to develop a new standard of underwriting, distribution activities, or contractual obligations on the part of the insurer (insurance distributor) reflecting its capabilities in collecting and processing the data concerning the risk covered by the insurance contract. Prevention as a part of the insurance coverage needs to be regulated in private law as an emanation of the principle of good faith and indemnity, as well as insurance market regulation as a reflection of sustainable development. Ensuring adequate privacy protection should form a part of this regulation.

The future regulatory solution could include the following paths: { 1 } introducing the risk information duties on insurers and risk prevention duties on both parties, in a symmetrical manner, both at the stage before the risk materializes and after; { 2 } explicitly allow risk prevention and mitigation as a related insurance service.

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51. KPMG, *Innovative risk approaches: New compliance and conduct Solutions*, 2021. <https://assets.kpmg/content/dam/kpmg/xx/pdf/2021/09/innovative-risk-approaches.pdf>. Access 15.12.2023

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Prewencja ryzyka i ubezpieczenia. Osiągnięcie czy przekroczenie granic ubezpieczenia?

Ubezpieczenia stanowią dobrze rozpoznawalną wartość prewencyjną. Jednak w ostatnim czasie, jeśli chodzi o prewencyjną funkcję ubezpieczeń, chodzi o znacznie więcej i można to usłyszeć w głosach coraz większej liczby ekspertów i ubezpieczycieli. Do przeprowadzenia niniejszego badania skłoniły autorkę trzy podstawowe czynniki: (1) dynamiczne zmiany w krajobrazie ryzyka, (2) pojawiające się

technologie ułatwiające zapobieganie ryzyku oraz [3] dostrzegana luka regulacyjna w zaspokajaniu potrzeb społecznych i potencjału technologicznego ubezpieczeń.

Kwestie prawne związane z wykorzystaniem nowych technologii w ubezpieczeniach były w literaturze szeroko dyskutowane, aczkolwiek wybiórczo. Dyskusje te koncentrowały się na kwestiach takich jak deklaracja ryzyka ubezpieczającego, potencjalne wykorzystanie wrażliwych danych do oceny ryzyka oraz zautomatyzowany proces dystrybucji (robo-doradztwo). Brak jest kompleksowej analizy prawnej funkcji prewencyjnej ubezpieczeń w tym kontekście. Istnieje zauważalna luka badawcza i publikacyjna, którą należy wypełnić kompleksowymi rozważaniami na temat prewencji ryzyka w ubezpieczeniach, zarówno na poziomie prawa prywatnego (umowa ubezpieczenia, obowiązki dystrybutorów ubezpieczeń, jak i prawa publicznego, dotyczące nadzoru nad stosowaniem środków prewencyjnych przez ubezpieczycieli. Znalezenie nowego podejścia, które mogłoby sprostać wyzwaniom prawnym, ma, zdaniem autorki, ogromne znaczenie dla rozwoju ubezpieczeń jako narzędzia ochrony przed najpoważniejszymi ryzykami społecznymi. Cele badawcze artykułu obejmują pokazanie wpływu nowych technologii na prewencję ryzyka, a także analizę tego, jaka może i powinna być rola ubezpieczyciela w prewencji ryzyka w kontekście prawnym, w tym potencjalną zmianę ról w wykonywaniu umowy ubezpieczenia. Cele szczegółowe obejmują kilka aspektów, m.in. czy prewencja ma szansę stać się wyodrębnioną usługą ubezpieczeniową, a także jakie są granice umowy ubezpieczenia i działalności ubezpieczeniowej w zakresie jej funkcji kompensacyjnej i prewencyjnej.

Słowa kluczowe: prewencja, zmniejszenie szkody, dobra wiara, zarządzanie ryzykiem, umowa ubezpieczenia

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