

**Boundaries of insurance contract – Legal considerations
on the role and subject of the insurance contract
in the world of new technologies**

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Abstract

The topic of new technologies impacting insurance has become an obvious and frequent subject of discussions at both academic and practical levels. It is about all the tools of new technologies that can be used at all phases of the insurance value chain from contracting until payment of a claim. The scope and direction of the technological changes raise questions about their consistency with the nature of insurance and its established principles. The research objective is to present the impact of new technologies on the insurance contract and to determine whether these developments necessitate a change in the approach thereto. Thus, the author asks the question how we actually understand insurance, what is its distinguishing feature and where is the limit beyond which we will have to look for another term than insurance? Finally, the changing nature of insurance subject to new technologies, can still be framed as an insurance contract, or should we expect to develop a new type of contract, such as risk management.

Key words: transparency, good faith, AI, blockchain, insurance, risk-pooling, peer-to-peer

1. Introduction

New technologies proved to be disruptive for insurance. Primarily it seemed that they would affect only the distribution channels and communication between the policyholders and insurers. It however appeared to be far from the truth and solely a peak of the iceberg. This is common knowledge already that the new technologies change the “face” of insurance, but quite probably they change also the brain of insurance and its DNA. It’s a task for insurance lawyers to identify the consequences thereof. This task seems to be necessary, as all the established principles are at stake, such as trust, transparency, loyalty, the community of risk, insurable interest, and others. By saying this the author does not mean the new technologies in insurance represent only

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downsides or that they threaten the existence of insurance. Quite to the contrary. They do have the potential of raising risk management on a higher level. Though we need to be aware of the legal consequences of these changes, in particular, and ask about the boundaries of the insurance contract. The purpose of this paper is thus to discuss the role of insurance and its legal vehicle, i. e. insurance contract in view of the disrupting power of new technologies.

Insurance since its inception has been an international phenomenon, supported by the liberalization of trade rules. Therefore, it seems reasonable to state that the principles of the insurance contract are also shared globally. This observation is important insofar as it justifies, and makes it easier to look for, common drivers of change within the rules also on a global, or at least European, level. In this regard, it is worth mentioning that contract law in the European Union presents a primarily functional approach (Lurger, 2004) and proclaims a departure from a formalistic approach and abstract understanding of legal principles, including contracting. This is relevant for the consideration of their state of existence and evolution. Considerations in this regard are worthwhile despite the fragmentary nature of the integration of private law, including contract law.

2. Where are the boundaries of insurance contract

Any deeper analysis of the spectrum of possibilities for new technologies in insurance raises many irremovable questions or doubts, including of an ethical nature. These are strongly rooted in the values professed by modern societies regardless of membership in a particular legal culture. In the view of the author it is not possible to assess the principles expressed in legal regulations without touching the underlying values. Thus, the analysis of the values embedded in the insurance contract must be tackled when discussing the nature of the insurance confronted with the new technologies. The second, more far-reaching issue is whether the impact of new technologies on the insurance contract goes so far that it changes its nature in a way that is irreconcilable with its seemingly immanent features.

At the beginning of this part of the discussion, we should ask how we understand insurance and what is its distinguishing feature and where is the limit beyond which we will have to look for another term than insurance? Before we reach for theoretical sources, we can use such common ones as Wikipedia or Investopedia. They define insurance as: “the contractual obligation of the insurer to provide benefits in the event of events in the life, health or property of the insured; the performance of the obligation is carried out by the insurer by paying claims or benefits from a fund created from premiums paid by individuals at risk of these events” (Wikipedia), or making the emphasis on aspects of risk management which define insurance as “means of protection from financial loss. It is a form of risk management, primarily used to hedge against the risk of a contingent or uncertain loss” (Wikipedia). Investopedia, on the other hand, points to insurance as “a contract, represented by a policy, in which an individual or entity receives financial protection or reimbursement against losses from an insurance company. The company pools clients’ risks to make payments more affordable for the insured” (Investopedia).

Reaching back to the doctrine of insurance law, points to the rather obvious nature of the insurance contract, distinguishing it from other contracts. For example, Professor M. Clarke states quite emphatically that: “The English courts know an elephant when they see one, so too a contract of insurance.” He also points out that until 2001, English legislation did not define insurance or a contract of insurance at all (Clarke, 2009). This has its undoubted advantages in terms of flexibility, since definitions can be both too broad and detrimentally too narrow (Clarke, 2009). The definition of an insurance contract is useful from the perspective of regulating the business of insurance, in the sense that this business means the performance of activities related to offering and providing protection against the consequences of fortuitous events, and this protection is provided only on the basis of an insurance contract (thus the insurance license is about the approval to conclude certain types of a contract, showing very specific features).

Confronting the descriptive Anglo-Saxon approach with other jurisdictions, we can cite Polish Civil Code, Article 805, according to which “by an insurance contract the insurer undertakes, within the scope of its business, to provide a specific performance in the event of an accident foreseen in the contract, and the policyholder undertakes to pay the premium.” In turn, the definition proposed in PEICL seems to address all the doubts raised in the doctrines of individual European countries and formulates the insurance contract as “a contract under which, however, a party – the insurer, undertakes towards the other party – the policyholder, to cover a specific risk in exchange for an insurance premium” (Basedow, Birds, Clarke, Cousy, Heiss, Loacker, 2016).

Although this study focuses on the legal aspects of insurance (i.e. the contractual relationship), in order to draw a meaningful conclusion about the real impact of new technologies thereon, it is necessary to at least touch the definition of insurance also on the economic, financial and sociological level. Based on these, we can distinguish features that reflect the values that stand at the roots of insurance. These features include reciprocity of burden and randomness of events, determinability and calculability of loss, existence of a large number of individuals exposed to similar risks (Ronka-Chmielowiec, 2016; Vaughan, 1997; Williams et al. 2002). Regardless of the origin of the definition, three basic elements of the insurance contract can be distinguished, namely the obligation of the policyholder to pay the premium, the uncertainty of the occurrence of an insured event, and the obligation of the insurer to pay compensation in the event of the risk materialization (Basedow et al. 2016). In a broader context, what emerges is a picture of an economic institution designed to protect individuals (and society more broadly) from the consequences of random events that threaten certain values considered socially important, which is best seen in compulsory insurance (Orlicki, 2011).

The features of insurance are transformed into operational principles of the insurance contract to ensure the functioning of insurance. Doctrine distinguishes several basic principles of the insurance contract, depending on the legal culture: (1) the principle of good faith (2) the principle of insurance interest (also called the indemnity principle or prohibition of enrichment), (3) the principle of reasonable expectations. Just as the principles reflect the basic values of insurance, they should be distinguished from rules, which aim at implementing the postulates included in the principles in an operative

way (e.g. the provisions of the risk declaration express the principle of good faith in insurance, etc). This conception of rules can be adopted after Prof. Ronald Dworkin (Malinowska, 2008; Dworkin, 1977).

The above principles have been functioning in insurance since its beginnings, distinguishing it from other risk management instruments or other types of contracts. What is changeable are the rules, which must follow the evolving reality, such as technology. Thus, in ever new ways, legislators are regulating the behaviour of the insurers, which to ensure the operation of the insurance principles. Indeed, various laws and regulations, including insurance laws, privacy laws, anti-discrimination laws, and supervisory requirements are designed to ensure that insurers act fairly, transparently, responsibly and in the best customer interest. The increasing application of new technologies raise questions about compromising some of the principles (Keller, 2020).

3. Risk-pooling or risk-splitting

Solidarity in risk bearing, community of risk, or mutuality are often cited key features of insurance (Keller, 2020). The insurance grew out of the concept of pooling the risk which is common to larger number of people and consequently is easier to bear when it's spread (Ronka-Chmielowiec, 2016). This concept is also present in completely modern forms, such as peer-to-peer insurance. The issue of sharing the risk in the context of new technologies should be discussed with respect to the possibilities of risk assessment leading to the precise risk and customer segmentation. With the help of new technologies, insurers can assess risks so precisely that they are able to create very narrow target groups of insureds reflecting nearly identical risk levels, and consequently limit their offerings to only those risks where the risk-to-premium ratio is favorable (Optic, 2020). Although homogeneity of the risk is traditionally considered beneficial in forming target groups for the purpose of creating the insurance product and subsequently for assessing the risk (Williams et al. 2002; Bravo, 2019; Polish Insurance and Reinsurance Activity Act, 2015, Art. 33; Insurance Distribution Directive, 2016, Art. 25), the application of new technologies can lead to hypersegmentation, i.e. to creating very narrow target groups or even creating the products addressed to an individual customer. In this respect, one encounters quotes such as “personalized insurance product” in order to emphasize the advantages of such a solution. But isn't it self contradictory? The answer to this question may be found in the regulations on governing insurance product included, for example, in the Delegated Regulations issued in implementation of the IDD Directive¹ (POG Regulation²). Numerous studies and sources of both state law and soft law lead to the conclusion that the insurance product should be distinguished from a particular, individually agreed insurance contract. In-

¹ Directive 2016/97 of the European Parliament and of the Council of 20 January 2016 on insurance distribution (recast), *Official Journal of the European Union*, L 26, 2.2.2016, p. 19–59.

² Commission delegated Regulation (EU) 2017/2358, of 21 September 2017 supplementing Directive (EU) 2016/97 of the European Parliament and of the Council with regard to product oversight and governance requirements for insurance undertakings and insurance distributors, *Official Journal of the European Union*, L 341, 20.12.2017, p. 1–7.

insurance product in its formal, external layer may be identified with general insurance terms shaping the rights and obligations of the parties to the insurance contract based on such standard terms. Numerous lawmakers provide for the obligatory content of the standard insurance conditions, but not of the individual insurance contract (e.g. Polish Insurance and Reinsurance Activity Act 2015, art. 16³). Taking the above into account, it should be stated that by regulating an insurance product, the legislator has in mind standard insurance terms creating a generalized type of insurance coverage addressed to a specific circle of insurance customers (target group), which is determined by the provisions of the POG Regulation. In this context the legislator has also clearly separated the process of creating an insurance product from the process of its distribution and risk assessment of an individual customer. It consists of activities specified in the POG Regulation, within the framework of which the product manufacturer determines the most important features and main elements of the insurance product, including the scope of insurance, price, costs, risk, target market and rights to compensation and guarantee, which are not significantly modified by the insurance company. The core of product manufacturing is the definition of the target market, which according to the POG Regulation means describing a group of customers with common characteristics at an abstract and generalized level to enable the manufacturer to tailor the product features to the needs, characteristics and objectives of such group of customers. The target market is defined at an appropriate level of detail, taking into account the characteristics, risk profile, complexity and nature of the insurance product. The definition of the target market should be distinguished from the individual assessment made at the conclusion of insurance in order to determine whether an insurance product meets the needs and demands of the customer.

Taking into account both the wording of the above provisions and the reasons for their formulation (mainly to counteract misselling), one should consider the consequences of “product personalisation.” Since the insurance will be addressed to an individual customer, and not to a group of customers with common characteristics, there is a risk of ‘evasion’ of the provisions of the POG Regulation in such a way that extreme hypersegmentation or personalization of coverage may lead to the disappearance of insurance products in the sense adopted by the regulator, as a type of insurance coverage. This, in turn, may have both regulatory implications in terms of the possibility of effective product intervention in relation to personalized insurance terms (which are not *de facto* insurance products), as well as civil law implications in terms of control of abusive provisions of general insurance, which is carried out also at the product level, and not at the level of an individual insurance contract. This results from the provisions of the Directive 93/13⁴, according to which abusiveness is determined in relation to standard terms, and not to individually agreed contractual terms (provisions of a

³ Ustawa z dnia 11 września 2015 r. o działalności ubezpieczeniowej i reasekuracyjnej, *Dziennik ustaw Rzeczypospolitej Polskiej*, Poz. 1844, Dz. U. z 2019 r. poz. 381, 730, 2217; z 2020 r. poz. 1180, 2320; z 2021 r. poz. 355, 680, 2140, 2328 [Act of 11 September 2015 on insurance and reinsurance activities, *Journal of Laws of the Republic of Poland*, item 1844, *Journal of Laws of 2019*, items 381, 730, 2217; of 2020; *Journal of Laws of 2020*, items 1180, 2320; *Journal of Laws of 2021*, items 355, 680, 2140, 2328].

⁴ Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts, *Official Journal*, L 095, 21. 04. 1993, p. 29–34.

contract concluded with a consumer that have not been individually negotiated are not binding on him if they shape his rights and obligations in a manner contrary to good practices, grossly infringing his interests).

Apart from the purely legal doubts, hypersegmentation of risk may be socially ineffective if it does not lead to attracting new insureds to the risk pool, and may even inhibit socially beneficial behaviors, such as R&D. Finally, higher rates may prevent the insured from taking advantage of the higher risk and may prevent some individuals from participating in important life activities, such as driving and owning a house. Given these concerns, it seems reasonable to have a broad pools of risk and to cross-subsidize insureds representing different levels of risk, even though this violates the libertarian ideal of actuarial justice. Unrestricted use of the perfected predictive power of random events may contradict the idea of a community of risk, and thus the qualification of coverage as insurance (Swedloff, 2020).

The doubts go even further. The application of artificial intelligence may lead to a situation in which insurers will not be able to limit the use of certain sources and categories of data, even if it will be statutorily prohibited. This concerns about risk factors such as gender, race, religion, etc., which, although objectively affecting the level of risk, have been deemed socially unacceptable to use in risk assessment (Swedloff, 2020; The Insurance Institute of Canada, 2021; OECD, 2020). A classification of risk based explicitly on the above factors may reinforce existing inequalities by charging a particular group higher rates, or defining them as inherently riskier and more uninsurable. In addition to issues of solidarity and social justice, this could reduce risk pools. Therefore, prohibition of applying an uncontrollable risk factor in setting the insurance premium can be seen as an expression of justice, especially when a higher premium does not reduce the probability of risk (Swedloff, 2020).

Hypersegmentation also raises more general objections. In the view of some, it condemns insurance to disappear, as it can lead to such a fine-tuning of premium rates in relation to risk that it would transform insurance into a savings activity not based on the randomness of loss events (Optic, 2020). In result, the consequences of loss events thus excluded from insurance would fall on society, which would bear them on the basis of social solidarity, as we currently expect insurance to do. Thus, the mere compatibility of the new technologies with the literally perceived provisions of insurance law should not decide on their consistency with the principles of insurance. For the reason that the insurance contract in its social role is based precisely on mutualization of risk and social solidarity, while total individualization of risk assessment and the hypersegmentation may contradict these assumptions. Thus, if hypersegmentation is to lead to exclusion and reduction of insurability of certain risks or social groups, without simultaneously creating another mechanism for managing such risks, this would be a reason for appropriate legislative intervention.

4. Randomness of the risk and insurable interest

The insurable interest can be defined as the possibility of suffering a loss as a result of a random event provided for in the insurance contract. It stands at the center of the

insurance contract and on the guard of the prohibition of enrichment, thus constituting a premise for the validity of the contract or receipt of indemnity (“a legal or equitable relation to the adventure or to any property at risk therein” (Clarke, 2009). The theory of insurance interest originally developed in property insurance, but now is not questioned also in relation to personal insurance, so that the insurance interest is the relationship of the insured to property or personal goods, which implies the possibility of suffering a loss due to a fortuitous event. This possibility and the desire to protect against the consequences of fortuitous events determines the purpose of the insurance contract, which is jointly pursued by both parties to the contract. Both those issues: the theory of insurable interest and the randomness of events covered by the insurance should be discussed in view of the possibilities resulting from applying new technologies in insurance.

The first arises in the context of creating an insurance product, mentioned also in point 3 of this paper. The technical possibility of high granularity of the target group of customers, as well as the precise definition of the target group in a given insurance product can undoubtedly lead to a better satisfaction of customers’ needs, and thus better reflect their insurable interest. This correlates with the provisions of the POG Regulation, the premise of which is to ensure that insurance products are designed in such a way as to take into account the objectives, interests and characteristics of customers (Article 4 of the POG Regulation), and to market only those insurance products that meet the needs, characteristics and objectives of customers belonging to the target market (Article 5 of the POG Regulation). One can conclude from this that building a product using algorithms provided by AI will better fulfill these regulations and will better tailor the product to the particular interest of the customer. And this conclusion is not altered by the caveat raised above about the potential macro effects of increasing the number of customers exposed to higher premiums or exclusion from insurance coverage (IAIS 2020; The Insurance Institute of Canada, 2021). This conclusion highlights to us the different macro and micro impacts and the need to balance them in the context of the social role of insurance as a risk management method.

What also seems important for the implementation of the principle of insurable interest in the context of the randomness of events, is the progressive possibility of predicting and preventing the risk or at least their consequences. Impact of the new technologies in that field cannot be overestimated. This can be achieved with the help of new sources of data about threats and, better and faster analysis, and, consequently, also by implementing more effective methods of reacting to a threat or even to an event that has already taken place. Cooperation of the policyholder with the insurer in this area in combination with a more relevant product or tailored insurance coverage significantly increases the role of insurance in terms of not only loss compensation but also loss prevention. While historically insurance was mainly focused on combining individuals into groups of risks and compensating losses, its primary function was not to prevent or predict risks in order to eliminate or reduce them (insurance role was rather “reactive” and not “proactive”). The proactive feature is something new that can be achieved thanks to new technologies and has undoubtedly had an impact on changing the perception of the insurance contract as a risk management instrument, not only through the transfer of risk (Optic, 2020; Keller, 2020).

As studies show, the risk prevention effect is achieved mainly through behavioral change by the insured, enhanced by devices based on new technologies, but surely it is just a beginning. The preventive role of insurance can be regarded with a high degree of certainty as the “new normal.” In the regulatory context, it may bring about changes mainly in the area of potentially strengthening the preventive duties on the part of the insured. However, it cannot be ruled out that this will result in the need to redefine the insurance contract, which now focuses on the insurer’s obligation to pay compensation or provide other services in the event of when the risk materializes and not before (see for example PEICL provisions), rather than focus on preventing the materialization of the risk. Accepting the change in the business approach of insurers to the prevention and putting it into a legal framework (the insurer would become a provider of preventive solutions, and the payment of compensation would only be the last resort in the event of failure of preventive measures) may also become a challenge for insurance regulators.

The concept of parametric insurance, whose development has been greatly facilitated by the use of new data sources (e.g. satellite), also deserves separate attention. The concept of these insurances raises doubts about the insurable interest (and principle of indemnity) in the context of by changing pure risk into speculative risk. This is because the calculation of the insurance compensation in parametric insurance is made without regard to the actual loss suffered by the insured, and is based on an index agreed upon by the parties (Law Commission and Scottish Law Commission, 2016). On the other hand, it is argued that in the absence of the insured’s control over the occurrence of a random event, the speculative nature of the risk is excluded, and insurance law does not prohibit the compensation of losses calculated otherwise than as a actual loss (see PEICL and local other insurance laws) (a widely spread model of insurance in the system of new value) (Lin, Kwon, 2019).

5. Good faith, loyalty and transparency

The issue of transparency takes us into the territory of one of the fundamental principles of the insurance contract – the principle of good faith. From its inception, the principle has involved trust and loyalty between the parties, including, most importantly, the disclosure of information relevant to assessing the risk covered. A perennial concern of insurers was the potential withholding of unfavorable information about the subject matter of the insurance, increasing the risk beyond the insurer’s awareness (doctrine of misrepresentation and concealment). However, this was at a time when the insured was the sole “owner” of the information and it was up to his goodwill to disclose it to the insurer. For this reason, this principle was already guaranteed in the first insurance laws (such as the Marine Insurance Act of 1906). In the PEICL, Article 2:101 regulates the duty to declare the risk in a detailed way: “(1) The policyholder shall bring to the knowledge of the insurer all circumstances known to the policyholder which the policyholder knew or should have known and which are the subject of intelligible and unambiguous questions asked by the insurer. (2) The circumstances referred to in par. 1, shall also apply to those of which the insured knew or should have known.”

The use of new technologies, in particular the artificial intelligence, for purposes of the risk assessment, puts the loyalty and transparency in a new light and raises new questions when confronted with the regulations. One issue is the source of the data that insurers use to assess risk. Based on the regulations, an insured may believe that the risk assessment is predominantly based on information from himself, over he has a control. However, artificial intelligence may “be” able to extract and assess individual customer characteristics from external sources, even though insurers may not ask for them. The question then appears how loyal it is for an insurer to use such data and whether this fulfils the postulate of utmost good faith. The gradual strengthening of the position of insurers through the development of insurance techniques also results in an increasing emphasis on the role of reciprocity of the good faith principle and the need to maintain it at all stages of the insurance relationship, not only by the insured but also by the insurer.

The issue of mutual loyalty should also be confronted when analyzing the consequences of breaching obligations of the insured in the situation of using artificial intelligence for risk analysis. When information comes from a human being (the insured) and is used by a human being (an underwriter) in the underwriting process, it is easy to require from the insurer to prove a causal link between erroneous data and risk assessment, or any fault of the insured. It may be different when the information comes not from the insured himself but, for example, from social media and it is not clear how a particular piece of information is reflected in the level of risk, and it will be difficult to assess the impact of a particular erroneous information on an insurer’s coverage decision.

The importance of this issue requires a confrontation of regulations implementing the postulate of good faith, such as Article 2 in PEICL or other laws (France, Belgium, Germany). As results therefrom, the good faith is maintained by the insured not only when the information is objectively correct, but also when the insured was diligent in providing the information, even if it was objectively false. As results from these regulations, the consequences of risk declaration are based on due diligence and loyalty of the insured, and to a lesser extent on the objective impact of the information on risk assessment or objective truthfulness of the information. This indicates that the element of (good) will, in combination with the reliance on the concept of risk sharing, is predominant in providing coverage by the insurer. The concept of risk pooling thus implies that different levels of risk are acceptable as long as the individual members of the pool behave loyally, both in the risk assessment phase (by providing information that is true from their point of view) and in the loss prevention phase (by not causing intentionally the insured event). Concerns about “harm” to insurance consumers when insurers make decisions based on data not directly provided by consumers, which may be incomplete or inaccurate, are therefore justified. Indeed, not knowing that the data is being used for insurance purposes also means not being able to correct inaccuracies by the insured (IAIS, 2018; IAIS, 2020).

Artificial intelligence can upset the balance created by the above regulatory standard of insurer misrepresentation. The need for insurers to have accurate information-which is obviously important-should not abstract from the diligence or not intentional faults by a policyholder when declaring the risk, and this is reflected in the cited regulations.

By making each statement in the application potentially relevant to each loss, AI shifts the burden of the risk of error to policyholders to a much greater extent than in traditional underwriting (Swedloff, 2020). Given the subjective element of good faith prevalent in current good faith regulations, the use of AI has the potential to disrupt the developed model of how this principle works. Based on the currently prevailing regulations, sanctions can be applied by the insurer only if it asked the insured for specific information and it was withheld or false information was provided intentionally, and furthermore, if such breach of loyalty had a real impact on the occurrence of an insurance accident – so in and PEICL an other laws. Can false personal information published by the insured on Facebook automatically mean a breach of good faith in relations with the insurer when the insurer used it without verification with the insured?

As mentioned, in the pre-AI era, it was the insured who possessed (almost exclusive) knowledge of the risk. Today, AI technology places insurers in a position superior to the risk owners themselves (Optic, 2020). In this situation, the burden of the transparency obligation shifts to the insurer, who must transparently and in good faith present to the insured how data is interpreted in the underwriting process. This transparency should take place in each of the automated processes, i.e. risk assessment procedures, pricing and claim settlement procedures, to enable the insured to understand the key elements. Specifically, the automated decisions affecting the customer should be explained with the same degree of detail and clarity that an experienced professional would in a similar case without the use of automated processing (Optic, 2020).

Since the role of good faith does not end at the conclusion of the insurance contract but continues until the claim is paid, the burden of good faith at the claim settlement stage obviously falls on both parties, i.e. the insured should not make false claims, while the insurer should promptly and in accordance with the terms and conditions assess the event and the amount of loss and pay the claim. New technology in the claims handling phase fosters contract performance in a way that satisfies the insured's need and thus reinforces the sense of loyalty between the parties, if the assumptions behind automated claims systems are programmed to do so. Technology in the hands of an insurer can serve loyal behavior as well as the opposite. It has been argued that an insurer is technically able to program the claims process to calculate the claim at the lowest permissible level and pay it as late as possible. Of course, not all new technologies raise such concerns. A completely opposite conclusion can be drawn from the use of blockchain, which is said to “have the potential to reinvent trust.” The blockchain premise, if properly understood, can replace trust in the insurer by trust in the system and may ultimately contribute to a more rational approach to risk management (World Bank Group, 2018).

6. Is code a contract ?

Paraphrasing Lawrence(a) Lessig claiming that “the code is the law” (Lessig, 1999) the issue necessary in the framework of this discussion is to answer the question whether the code can be an insurance contract. Commonly, blockchain technology is reduced to the distribution and execution layer of an insurance contract. However, when we look at how it works, it may actually be about more than that. Blockchain is about a

specific approach to recording and sharing data. The technology allows transactions and data to be recorded, shared and synchronized across a distributed network of different network participants (it stores and transmits data in “blocks” that are linked together to form a digital “chain”) (Berry, 2016; Borselli, 2019). Blockchain uses cryptographic and algorithmic methods to store and synchronize data across the network in an immutable manner. Instant verification of information sources, full auditability, no need for an intermediary or loss adjuster seems to be in line with the principles of the insurance contract. It reinforces (or even replaces) the trust and loyalty between the parties that are the basis of the traditional insurance contract, both at the stage of collecting risk data and at the stage of executing the contract through qualification and valuation of the benefit.

In this context, however, the question arises whether it is still an insurance contract? It is true that blockchain does not stand in the way of functioning of insurance as a risk pool, but when blockchain refers to the absence of an intermediary, in fact, it is not about an agent or broker, but about an insurer, who from the point of view of the system is a kind of intermediary in organizing a pool of risk-owners, managing it and the funds collected from premiums for securing future payments, and collecting remuneration for these tasks. If, on the other hand, the risk pool can operate through blockchain, without an “intermediary”, do we then have to do with an insurance contract, the party to which, in today’s legal reality, must be a licensed insurance undertaking (an insurance contract is considered a qualified contract for that reason). Or will it be a contractual relationship between all participants in the transaction and the system.

If we understand a smart insurance contract as a program stored on a blockchain that runs when predetermined conditions are met in such a way that the insurance claim is paid automatically after data entry, without the involvement of an adjuster, we can assume that we are dealing with a contract (Pecyna, Behan, 2020). Such a conclusion will be legitimate when the “predefined terms” are the provisions agreed between the policyholder and the insurer, introducing the “predefined terms” (predefined rules) into the system (Levi, Lipton, Arps, 2018). The impact of blockchain on the contract is then essentially technical and we can claim that the nature of the contract would not be affected.

However, the doctrine points out that “a smart contract is not necessarily equivalent to a contract in the legal sense and its legal qualification will depend on the case-by-case analysis” and de facto on the content of the code. Indeed, it may go beyond the contract execution phase, as in some circumstances, it is possible that the programming language of the smart contract will itself constitute the content of the contract (Pecyna, Behan, 2020). However, it seems that even such a possibility does not necessarily lead to a change in the principles of the insurance contract, if the code is based on transparent data about the risk and conditions of paying the claim, as long as it prevents payment in case of intentional events, or which lack randomness for another reason. Nor does such a view change new ways of calculating the compensation, such as in parametric insurance (EIOPA, 2021). Even if this may potentially conflict with the principle of indemnity, it satisfies the criteria of insurability of risks and definitions of insurance, both economic and legal. However, some authors already point out that industry-specific concepts such as “good faith” or “reasonableness” cannot potentially

be expressed by the simple rules on which smart contracts are currently based. It would take countless code and resources to describe all possible eventualities and complex scenarios. These doubts cannot be ignored if blockchain is to apply in insurance more complex than just covering flight delay risk (AXA, 2017; Linarelli, 2019; EIOPA, 2021; Lloyd's, 2019; Kot, 2020). It is reasonable to assume that the application of blockchain to other, more complex types of insurance will follow as the technology itself advances, when even the most complex scenarios can be reflected in code.

However, the above does not answer the fundamental question of whether such a smart contract will still be an insurance contract if the insurer plays a role of a mere “intermediary” that can be eliminated. Indeed, it seems that it will still be an insurance contract, which can, like an elephant, be recognized without any doubt, as long as a licensed entity will decide about the cost of the coverage and terms of compensating the loss. This is supported not only by formally captured *essentialia negotii* (substantive elements of the insurance contract), which are included in the provisions of civil law, but also by the regulations on managing of the insurance fund, i.e. the conditions for conducting insurance business, in Europe defined mainly in the Solvency II Directive. However, as soon as these conditions can be set by anyone, and the payment of claim can come from dispersed sources and from insurer (e.g. by collecting a certain amount of money from the credit cards of the participants of the system and transferring it to the insured), we may still be dealing with a contract, but either it will not be an insurance contract, or we will have to accept the change of its nature. For a code, a system or its anonymous participants or an artificial intelligence with legal personality to become an insurer (Linarelli, 2019) will formally require the intervention of the legislature.

7. Conclusions

Insurance is built on trust. This statement has been made since the dawn of insurance and continues to be repeated now in the context of the application of new technologies to the conclusion and performance of an insurance contract. Trust in technology is key, both where their use is focused on the internal operations of the insurance company (e.g., actuarial activities) and in the direct relationship with the policyholder, such as asking specific questions to assess the risk.

New technologies have the potential to introduce changes to almost all insurance features and principles. The role of regulators is therefore to consider which changes we should accommodate and which values are so central to insurance that their preservation should be guaranteed and the main factor should not be the so-called nature of the insurance contract but its ability to secure the values that insurance serves.

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