

## FAIR APPORTIONMENT OF RISKS BETWEEN THE PRODUCER AND THE CONSUMER IN THE EVENT OF UNKNOWN RISKS

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### Abstract

The main and most important legal act in the European Union (EU), which establishes “strict” civil liability for producers, is the Council Directive on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products (hereinafter referred to as the Directive). Article 4 of the Directive states that the producer could be held liable if all of the following conditions are present: the damage caused, the defectiveness of product and the causal relationship between defect and damage. Generally, it is agreed that one of the main objectives of tort liability is to strike a balance between the interests of the victim and the debtor. The Directive also strives to achieve an appropriate balance between the consumer and the producer by introducing a liability system for producers (and, when appropriate, this system provides for the apportionment of liability for other persons involved in the production and distribution chains of the product). Considering the inherent features of new technologies, as well as the fact that the Directive was adopted 35 years ago and was only slightly amended in 1999, it could reasonably be questioned whether the fair distribution of risks enshrined in certain provisions of the Directive is also adequate in cases of products, when new technologies were involved in the production of the product or are incorporated in the product itself, with an assumption that the use of such products could create new unknown risk and lead to potentially hazardous situations that could cause harm to the user of such products.

**Purpose** – This article has two objectives: (1) present the content of the fair apportionment of risks between the producer and the consumer enshrined in the Directive 85/374/EEC, and (2), following examination of the concept and cases of unknown risks, determine whether in case of new technologies the balance of risk established in the Directive remained unchanged and consistent with the objective of protecting the consumer.

**Approach** – The object of this study is the interpretation and application of the provisions laid down in the Directive 85/374/EEC used by the European Court of Justice, the analysis of the relevant legal doctrine and risk theory.

Systematic, teleological and comparative law methods were applied.

**Finding** – The general principle of legal certainty in the EU requires the rules to be clear and precise, which makes their consequences foreseeable. In accordance with Article 168 (1) of the Treaty on the Functioning of the European Union and Article 35 of the Charter of Fundamental Rights of the European Union, a high level of protection of human health must be ensured by defining and implementing all EU policies and activities, including in the area of liability for defective products. Taking into consideration the new risks emerging from new technologies, the need to ensure a high level of consumer protection is one of the relevant objectives of the EU legislature (and the representatives of the legal science doctrine), which could be achieved by the creation of an appropriate security and liability framework that could guarantee a high level of safety and become an effective mechanism (COM(2018) 795 final Annex p. 18) to provide redress for victims. The European Parliament resolution (2015/2103(INL)) states “< ... > that the future legislative instrument should be

based on an in-depth evaluation by the Commission determining whether the strict liability or the risk management approach should be applied”.

**Research limitations/implications** – This paper analyses the application of tort liability for the producer based on the strict liability approach. The aim of the paper is not to identify what should be considered as new technologies, provide and describe in detail their characterizing properties, adaptability or benefits. In this paper, the notion of new (or emerging) technologies is primarily used in order to emphasise their distinctiveness and novelty when compared to the “standard consumer products” used in society, while highlighting the additional new risks posed by such new technologies and their potential impact on existing legislation. The notion of new technologies is used in this study in the context of the Directive on product safety and other related sectoral legislation on EU products and the Directive on producer responsibility, that is, new technologies are defined primarily as a specific product for consumers.

**Practical implications** – The analysis of the producer’s liability, as well as the current assessment of the legal acts concerning the liability of the producer in the context of new technologies, is likely to benefit both: the legal science doctrine and legislature.

**Originality/Value** – The issue analysed in this article has not yet been studied in Lithuanian scientific literature. In foreign literature, the producer’s liability system has been extensively analysed by the following scholars: D. Fairgrieve, B. A. Koch, C. van Dam, P. Machnikowski, G. Howells, S. Whittaker, H. C. Taschner and other authors.

**Keywords:** product liability, civil liability, tort, risks, unknown risks, consumer protection.

**Research type:** general overview.

## Introduction

The intensity of scientific progress is one of the features of the modern age that is prompting new scientific discoveries that become available and used by the general public. The emergence, development and application of new technologies (artificial intelligence, autonomous systems, the Internet of Things, nanotechnologies, etc.) in many important areas for society (such as, transport, pharmaceuticals, medicine, environmental protection) not only increase overall national well-being but also individual well-being and generate significant economic added value (Gopalakrishnan and Damanpour, 1997), they also create new hazards and risks (Nickel and Vaesen, 2012). The hazard to society posed by the risks resulting from new technologies has been highlighted in the report presented by the World Economic Forum on January 15, 2020 (The Global Risk Report, 2020).

The Directive establishes a specific *ipso jure* regulatory framework whereby the producer is strictly liable for defective products. According to scholars, the Directive is not only a crucial piece of EU consumer protection policy, but also a crucial legislative act that has led to further harmonization of non-contractual liability and private law (Weatherill, 2005; Fairgrieve and Howells, 2007; Reich, 1986; Howells, 2005). The Directive sought not only to protect consumers but also to guarantee undistorted competition between producers and to facilitate the free movement of goods by establishing a common regulation on the liability of producers for damage caused by defective products (Directive 85/374/EEC). As the European Court of Justice stated in the case of the Commission v France: “<... >. The legislator has defined the scope of [the Directive 85/374/EEC] because of the complexity of the process of balancing the various interests. These interests include undistorted competition, facilitating trade in the internal market, consumer protection and ensuring the proper administration of justice” (judgment in Commission v France, para. 29).

One of the drafters of the Directive, Hans Claudio Taschner points out that product liability is an attempt to answer the question of who should bear the risk for any possible

harm arising from modern mass-produced products. Whether that risk should be passed on (a) to the victim/consumer, since they were using products produced in such a way for their benefit, (b) to the State, which would mean that any emerging risks would be jointly and equally transferred to all taxpayers, or (c) to the producer, who has placed the product, which does not meet the safety requirements expected by the public, on the market (Taschner, 2005). The fact that the Directive provides strict producer's liability suggests that the producer should bear the risk for damaged caused by modern mass-produced products. This seems to be based not only on the general principles of "strict" civil liability, *ubi emolumentum ibi onus* ("where there is a right, there must be a duty") or *cuius commoda eius et incommoda* ("who benefits from dangerous activities must bear the financial risk of negative consequences"), or on the identified risk theories justifying "strict" civil liability, but also on the arguments legitimizing the producer's liability without fault and describing his status as follows: the producer's ability to control the risks involved, which means that the producer has to make a choice between attempting to make the product as safe as possible or face possible negative financial consequences in the event of launching a defective product. The producer can take measures to insure against potential risks due to product defects: either by building potential costs into the price of the product, justified by the need to insure against risk, or by insuring his activities by means of civil insurance.

However, the producer's liability is not absolute. As stated in the seventh recital of the Directive: "whereas a fair apportionment of risk between the injured person and the producer implies that the producer should be able to free himself from liability if he furnishes proof as to the existence of certain exonerating circumstances", which clearly indicates that the producer's liability is limited. Scholars agree: the emergence and development of new technologies create new hazards and risks (Poel and Fahlquist, 2012). Therefore, questions could be rightly raised not only regarding risk in the event of injury for which the producer is not liable, but also whether the Directive establishes a fair apportionment of risk and succeeds in fulfilling one of the main aims of tort law: to achieve an appropriate balance between the interests of the victim and the debtor in the case of new technologies and in the event of unknown risks. In order to provide an assessment of the issues raised, it is appropriate, first and foremost, not only to define the theoretical basis for liability of the producer but also to look into the risk aspect in tort liability, distinguishing the concept of unknown risks.

### **The aspect of risk ambiguity in tort law. The concept of unknown risks**

The concept of risk as a scientific phenomenon is analysed not only in the technical-scientific context or in the theory of decisions, but also in social sciences. The heterogeneous research area has led to different definitions of possible concepts of risk, for example: risk is an undesirable event that may or may not occur (Rosa, 1998); risk is the cause of an undesirable event that may or may not occur; risk is the probability of an undesirable event that may or may not occur (Graham and Weiner, 1995); risk is the statistical value of the expectation of adverse events that may or may not occur (Willis, 2007; Campbell, 2005).

The following key elements of risk could be highlighted from the risk concepts presented above: adverse effects, magnitude and likelihood. However, in individual disciplines, risk can also be described in a positive context. For instance, in the areas of finance and economics the concept of "risk" is generally divided into two categories: the "upside risk" and the "downside risk" (Kancerevyčius, 2009); such a distinction is made due to the fact that "risk" can have either a positive or a negative effect. However, in the legal context, the concept of risk is predominantly linked to adverse effects and, therefore, its connotation is

negative, as risks are defined as the likelihood of a negative outcome in the future (*Risk regulation private law*). Similarly, in the EU legislation and its explanatory documents, risks are usually defined as the likelihood of an occurrence of an event (COM(2013)76, p. 4), which is linked to a potential hazard. For example, in Regulation (EC) No. 178/2002 of the European Parliament and of the Council laying down general principles and requirements for food legislation, risks are defined as the probability of adverse effects on health and the severity of those effects, which give rise to risks. In Decision No. 1313/2013/EU of the European Parliament and the Council, a risk is defined as the impact and probability of an adverse event.

The concept of risk is central to tort law. In legal doctrine, more frequently liability could be observed to be defined as a “system of risk regulation” (Dyson, 2018). Risk in tort law is quite a broad concept and can be employed in different ways; therefore, in the context of tort law, risks may be conceptualised differently, some of which are presented below.

*Risk as a basis for tort liability.* According to risk theories developed in the early twentieth century, risk is recognised as an essential element of civil liability without fault. Unlike fault-based liability, risky or risk-related activities are legitimate and socially desirable, albeit being potentially hazardous to others. Some leading French authors on the subject of risk theories (“*Theorie du risque*” in French) R. Saleilles and L. Josserand have argued that liability in certain situations should be based not on fault, but on a broader concept of risk (Wester-Ouisse et al, 2018). Saleilles claimed that any activity that would benefit one person could endanger another; therefore, the person in control of the activity should accept the responsibility for the risks, which are created as a result of the beneficial activity. Josserand upheld the claims of Saleilles by stating that the person who created the risk, namely, the person responsible for the damage resulting from the materialized risk, should be subject to civil liability (Wester-Ouisse et al, 2018). German law refers to liability without fault as risk-based liability (“*Gefährdungshaftung*” in German), when carrying out certain (non) hazardous activities, often socially beneficial or universally acceptable, individuals assume the risk that their activities could cause harm to other persons.

*Risk deterrence and risk assigning as key functions of tort liability* (Bell, 2008). The purpose of risk-based liability is to reduce the potential harm by apportioning the risk. From an economic point of view, the deterring function of tort liability is even more significant (Bell, 2008) than compensating, as it aims to encourage those involved to exercise due diligence and reduce the risks associated with the activity. In other words, the purpose of such a liability system is to deter those involved from exposing others to excessive (or irrational) risks in order to maximise safety and avoid causing harm.

The case of risk assignment is clearly observed in the producer's liability system, where, in the event of a product shortcoming the risk of injury is attributed to the producer as he has a greater preventive potential to reduce the risk of harm and injury and is able to ensure his activities (or operational risks).

*Risk-taking as a general basis for non-liability.* Risk-taking is one of the general grounds for exclusion from tort liability in the civil liability systems of European countries. In England, this basis is expressed through the *Volenti non fit injuria* (“consent does not cause harm”) principle, which applies if the victim has given consent to the actions that caused him harm. According to the *Volenti non fit in juria principle*, the person who has expressed his consent to the risk consequently loses his right to compensation for the damage occurred. In Germany, acting at your own risk (“*Handeln auf eigene Gefahr*” in German) is also considered as a ground for exclusion from civil liability. In France, the exclusion from liability in the event of risk-taking is referred to as “l'acceptation des risques”.

Soft law sources in the Principles of European Tort Law (PETL) and the Draft Common Frame of Reference (DCFR) also establish risk-taking as grounds for non-liability. In

particular, Article 7:101 Part 1(d) of the Principles of European Tort Law provides that the damage caused may not result in civil liability for the person responsible, if the victim himself has given consent or has assumed the risk of being harmed. Accordingly, Article 5:101 Part 2 of DCFR Book VI states that a person may not be held liable when the injured person was aware of the risk of the possibility of causing the damage, voluntarily accepted it and consented to its occurrence. It is important to mention that in the case of risk-taking, non-liability requires the victim to be aware of the risks, and to voluntarily and of his own free will accept the possibility of their occurrence.

*Development risk as a special ground for exclusion from strict liability.* One of the special grounds for exempting the person causing the damage from liability is the level of scientific and technical knowledge available at the time, since it was not possible to predict the possible occurrence and extent of the damage. One of the main objectives for the exclusion of liability under such circumstances is the desire to promote innovation and not to hinder technical progress.

According to the opinions of the Economic and Social Committee (OJ C114/15,1979) and the European Parliament (OJ C127/61,1979), in order not to reduce competition between the European Economic Community and other parts of the world, the risk of product development was included in the Directive (Article 7 (e)), which exempts the producer from liability for damage caused by the product, where the defect of a product could not be observed because of the state of scientific and technical knowledge at the time.

*Risk as a condition for civil liability.* The principle of *neminem laedere*, which justifies the appointment of tort liability, means not to cause damage to another person and his property, in certain cases, taking into consideration the protected good, even the fact of developing situations involving certain risk could subject the person responsible to tort liability for which he will be obligated to compensate for the damage, i.e. restore the *status qua* of the victim.

### **An attempt to define the concept of unknown risks**

Unlike risk itself, the concept of unknown risks has not been consistently studied or defined unanimously by researchers, nor in legal doctrine. However, regarding tort liability, some derivative definitions can be established by applying elements of the concept of risk and the risk profile.

Studies conducted by various researchers (The Scientific Council for Government Policy, 2009) as well as EU institutions and international organizations (OECD, 2015) point out the concept of uncertainties in reference to the unintended consequences arising from novelty or lack of scientific knowledge. While uncertainties cannot always be considered as equal to or used as synonyms for the notion of unknown risks since uncertainties can be classified in various levels (Riesch, 2012), in the legal context, however, the use of unknown risks and uncertainties as synonyms could be deemed as permissible. This conclusion seems reasonable from the point of view of the relationship between risks and uncertainties presented by economists. One of the first to examine this relationship was F. Knight (1921), who stated that the risk can be explained as follows: “You do not know what is going to happen (A/N: potential impact is defined), but you know the odds (A/N: probability is defined),” and uncertainty, opposing the concept of risk, means “we do not know the odds”, which means that we do not know the probability. According to him, the term “risk” means that the probability of an adverse event and the consequences of a negative event are quantifiable, while “uncertainties” are immeasurable, as they occur in situations where probability and/or impact are unknown. It should be noted that the main distinguishable reasons for the rise of uncertainty are a lack of scientific knowledge, which makes it impossible to identify a

potential risk, or the novelty of a situation, where statistical information on past events has not yet been collected or assessed (Meyer, 2017). Given the established relationship between uncertainty and risk, it could be concluded that unknown risks are likely to lead to negative consequences, which is one of the distinctive elements of risk, i.e. probability or impact is objectively unknown.

Another fundamental basis for distinguishing between unknown risks could be associated with the subjective information on existing risks held by the victim. One of the general grounds for release from tort liability referred to in the article is risk-taking, which normally provides for cases of applicability of this framework. One of the prerequisites for the application of such grounds is the victim's awareness of the potential risks. With this in mind, based on the potential (accessible) subjective information held by the victim about the risks, the unknown risks could be defined as potential negative consequences, the effects and probability of which are unknown to the victim.

Unknown risks can also be identified on the basis of a specific framework for the dismissal of civil liability, development of risk, the main element of which is the objective evaluation of existing and accessible scientific knowledge. Considering this reasoning and the possible notion of scientific uncertainty (Renn and Klinke, 2013) associated with the limitation or absence of certain scientific knowledge (data, information), unknown risks could be described as negative consequences, of which the probability and potential impact due to an objective lack of scientific knowledge or their objective inaccessibility are unknown.

In short, in the context of tort law, the concept of unknown risks could be described as a risk, of which (a) the probability or effect is objectively unknown (in relation to the risk with an objective criterion) or (b) the impact or probability was unknown to the injured person (in relation to the risk with a subjective criterion), or (c) one of the inherent elements, i.e. the probability or impact due to lack of scientific and technical knowledge is unknown (in relation to the risk with an objective criterion).

That said, some believe that a further type of risk exists, namely, risk when all elements are unknown. A member of the United States Senate, Defense Secretary, Donald Rumsfeld (2002) referred to what could be described as completely unknown risks (or unknown unknown risks), when he indicated that: "There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we now know we don't know. But there are also unknown unknowns. These are things we do not know we don't know".

### **The Directive establishes a fair apportionment of risks between consumers and producers and strikes a fair balance in the event of unknown risks**

The Directive, together with the Council Directive 2001/95/EC on general product safety (hereinafter referred to as "Directive 2001/95/EC") and other EU legislation on product safety, is an integral part of the rules of the European Single Market. The EU is committed to ensuring a high level of protection of consumer rights. Articles 12 and 169 of the Treaty on the Functioning of the EU state that in order to promote the consumers' interests and ensure a high level of consumer protection, the EU contributes to the protection of the consumers' health, safety and economic interests, as well as to promoting their right to information, educational activities and assembly into organizations to protect their interests. Accordingly, Article 12 of the Treaty on the Functioning of the European Union (TFEU) states that consumer protection requirements should be taken into account when defining and implementing other EU policies and activities. The second sentence of Article 35 of the Charter of Fundamental Rights of the European Union stipulates that a high level of protection

of human health shall be ensured by defining and implementing all of the EU policies and activities.

In the first part of the preamble of the Directive it is stated that the “approximation of the laws of the Member States concerning the liability of the producer for damage caused by the defectiveness of his products is necessary <... >; in the second part “whereas liability without fault on the part of the producer is the sole means of adequately solving the problem <... >”; in the seventh “whereas a fair apportionment of risk between the injured person and the producer implies that the producer should be able to free himself from liability if he furnishes proof as to the existence of certain exonerating circumstances”. In recital II of Directive 1999/34/EC amending the Directive of 10 May 1999, the objective of harmonisation of competition in the single market (A/N: now referred to as the “internal market”) was supplemented by noting that the Directive aims to promote innovation, scientific and technical development. Thus, as is clear from the recitals presented, the Directive pursues a number of different objectives: it aims not only to ensure consumer protection, but also to harmonise the regulatory regime for producers’ civil liability for damage caused by defective products, to ensure undistorted competition between operators, and to facilitate the free movement of goods.

There was a broad debate among legal academics (Machnikowski, 2016; Taschner, 1986; Boom et al, 2017): as to whether Directive 85/374/EEC should be seen as a tool developed in order to achieve harmonization of the single market or to ensure consumer protection. While legal academics are more inclined to support the position that Directive 85/374/EC is designed to regulate economic relations in the internal market rather than to seek consumer protection, the case-law developed by the European Court of Justice consistently confirms that the objectives pursued by the Directive are equivalent, emphasising the apportionment (C-154/00) of the right risks (or balance) without prioritising them (C-358/08).

The fair apportionment of risks between the producer and the consumer is determined by certain provisions of the Directive, which contribute to the sustainability of the interests of the producer and the consumer. The interests of the producer are protected in cases when the producer is released from liability (Article 7 of the Directive), i.e. if the producer has not put the product into circulation; there was no defect at the time the product was put into circulation; the product was produced without the intention of distributing it; the defect was a result of an attempt to comply with the mandatory requirements laid down by the public authorities; the defect could not be detected due to the level of scientific knowledge that existed at the time the product was put into circulation; the possibility of reducing or completely exempting the producer from liability due to the fault of the victim (Article 8 of the Directive); a set period limitation of three years in order to take action and a period of 10 years for the objective producer’s liability (Articles 10 and 11 of the Directive).

In order to ensure the protection of consumers’ rights and to maintain a fair apportionment of risks between consumers, the Directive establishes not only “strict” liability for the producer for damage caused by the presence of defects in his product (Article 1 of the Directive), but also establishes the so-called consumer expectations test in order to establish whether the product has a defect. The product’s defect, which is considered to be one of the main (Fairgrieve and Pilgerstorfer, 2017) conditions for the attribution of the producer’s liability, is determined solely on the basis of consumer expectations and the product’s reasonably foreseeable safety (Article 6 of the Directive), i.e. the producer’s liability is not being directly linked to the particular actions or undertakings of the producer that he could have taken and therefore his liability could have been waived or reduced, but to the objective public expectation for the product. Consumer protection is also covered by the Directive in

regard of the joint liability of the several persons liable (Article 5 of the Directive); therefore it ensures consumer protection in the case of several producers or other persons involved in the production/supply chain of the product and prohibits the producer from imposing possible restrictions or exemptions from liability (Article 12 of the Directive).

### **Cases of unknown risks**

As indicated above, one of the conditions for the application of liability to the producer is the defect of a product. Article 6 of the Directive defines when a product is considered to be defective, i.e. if it is not as safe as the person was entitled to expect, taking into account all the circumstances, including (a) the presentation of the product; (b) the purpose for which the product may reasonably be used; and (c) the time of putting the product into circulation. Although the concept of a defective product enshrined in the legal literature is not unequivocally assessed, both because of the characteristics of a defective product and because of its inaccuracy (Howells, 2005; Fairgrieve, 2013) it can be concluded that the defect of the product is directly and exclusively linked to its safety. As H. C. Taschner (2005) points out, the lack of a product is an objective concept, which is based on safety, and it is qualified in accordance to the beliefs of the general public. In this context, the question arises as to what a safe product is and what the expectations of the general public are justified. Article 2(b) of Directive 2001/95/EC defines the concept of a “safe product” as a product which does not pose or only minimal risk; in paragraph 4 of the same article, it is also stated that, when assessing the safety of a product, the consumer groups, in particular children and the elderly, who may be at risk as a result of the use of the product, must be taken into consideration.

Considering the fact that the concept of a “safe product” allows for the existence of certain risks, the relevant issue here is what risks should be allowed. In one of the most recent cases before the European Court of Justice, which raised the issue of producer liability (Merged Cases C-503/13 and C-504/13, Boston Scientific Medizintechnik), Advocate General Y Bot stressed the objective pursued by the Directive of the apportionment of risk and defined the concept of safety in terms of product-related risks: “<... > this concept (safety) must be inclusive for products, which carry an unusual, reasonably unforeseeable and greater risk to user safety than normal use. Consequently, a lack of safety is not a risk arising from the use of a product, since such a product may be dangerous even if there is no safety defect, but the fact that the product has an abnormal chance of causing harm to the health or property of the user of the product. In other words, a defect within the meaning of Article 6 Part 1 of Directive 85/374 poses a serious risk of harm, which infringes the public’s legitimate expectation of safety”.

In light of the present assessment by Advocate General Y Bot, without denying the possibility that a product may pose a particular risk, it will not be considered to be defective, unless it is safe to use in accordance with the consumer’s legitimate expectations and does not possess any significant risk of causing harm. It is clear that consumer expectations, which must coincide with those of the general public, can only arise if certain product-related information, including risk information, is available. In the absence of risk information provided by the producer, consumers may develop a false expectation of the product. Therefore, it must be concluded that the producer is held liable under the Directive in the event of harm caused to the consumer due to the defect of a product, the risk of which has not been disclosed to consumers by the producer.

In the event of an insufficient level of scientific and technical knowledge and the lack of the producer’s ability to identify, at the time of the release of the product into circulation, the unknown risks of the product, which may cause a defect of the product that could cause

damage, the producer may refer to the special development risk liability exemption provided for in the Directive (Article 7(e)). In the question whether the producer would be able to use this basis in the case of new technologies, the answer would be dependent on the possibility of exploring that particular new technology and the risks associated with it. In any case, the answer would be determined by the correspondence level of the new product to the highest scientific and technical knowledge.

As referred to in this Article, new technologies pose new additional risks in comparison to conventional products that are not necessarily related to the knowledge of the highest scientific level of a particular product. However, unknown risks may also arise from such product interaction with each other and create certain systemic risks that may lead to the occurrence of a defect in one of the products, which could potentially be harmful in the future. The main distinguishing features of new technologies are complexity, scientific uncertainty and socio-political ambiguity (Alemanno et al., 2013) can challenge the consumer's ability to identify the grounds for the producer's liability for the defects of the product and damage caused. The Cambridge International Dictionary of English defines complexity as a particular state, which consists of many parts that are difficult to understand or find the right answer to. The complexity of sociological scientists is defined as a phenomenon manifested in the difficulty of identifying and quantifying causal links between a large number of possible cases and a specific adverse effect (Alemanno et al., 2013). Regarding the complexity of new technologies, their technological complexity, which is based on different interdependencies between different components (SWD(2018) 137 final, p. 9), i.e. the interaction between tangible items and different software components in the EU Commission Communication on "Building a European Data Economy", underlined that new technologies create both composite and complex interdependencies between products (based on hardware or software) and between embedded devices (SWD(2017) 2 final, p. 40). One of the most frequently used examples of such new technologies could be artificial intelligence. In addition to the general characteristics mentioned above, artificial intelligence has the following characteristics: (1) an ability to accumulate, process, evaluate information, learn from the environment and other artificial intelligence; (2) an autonomy, software dependency; (3) an openness, manifested in the ability to develop new tangible products together with other technical equipment.

After considering both, the general characteristics of new technologies and the example of artificial intelligence, it could reasonably be questioned whether the fair apportionment of risks set out in the Directive remains accurate for cases involving new products. When assessing the conditions for the apportionment of the producer's liability set out in the Directive, there are some substantial doubts about the practical feasibility, mainly concerning the requirement for the injured person to prove the causal link between the damage and the defect (Article 4 of the Directive). As products become more interconnected, digitised, autonomous, sometimes even interactive over the Internet, it will become more difficult or even impossible to identify the potential defects of the products for victims when they will be collecting data from certain cloud services uploaded on the Internet.

Considering the general principle of legal certainty in the EU that requires the rules to be clear and precise, which could make their consequences foreseeable, the accuracy of the term "product" enshrined in the Directive could be questioned. The product concept defined in the Directive does not cover the provision of services (provided, of course, that the service does not form an integral part of the product itself for which the producer is responsible as the final product), which makes it unclear whether the consumer has the right to submit a claim for a defect in the product to the producer, in the cases when certain third-party software is being used in order to operate the product independently.

## Conclusions

According to the characteristics of new technologies and the types of unknown risks identified in this article, it should be noted that the product's defect and damage may be caused by any of the identified unknown risks, i.e. a product based on new technologies may have a defect due to a functioning risk where one of the elements of which is unknown or unquantifiable. As a possible example, the use of embedded products, where the individual use of products does not entail additional risks for a particular product, but in the case of interaction of different products (for example software and device), there may be a possibility of new, systemic risks, where impact or probabilities are unknown. The causal link between the harm caused by such risks and the defect of a product will, as indicated above, be more difficult for the consumer to prove. Also in the event of systematic risk of different innovative products, there is unclear what level of safety a person is entitled to expect. Of some interacted product a person may expect that some types of accidents can be prevented by one of the producers.

A defect of a product may also be caused by the failure on the part of the producer to disclose the known risks of the product to the consumer. Although the producer has the obligation to inform the consumer about any potential risks, it should be noted that in the case of new technologies, the likelihood that the producer might experience a lack of information about the possibility of certain risks in the case of interaction of different products is higher than in the case of standard products especially due to the openness of certain product and possible relations to other products.

Concerning the scientific uncertainty in the case of new technologies, the emergence of unknown risks based on the absence of scientific information might result in damage, however, the producer shall not be held liable on the grounds of the exception provided by the product development risks established in the Directive. But the total amount of complex products is increasing in comparison to previous and new technologies which are becoming more widely used may lead to more cases where scientific uncertainty may arise.

In view of the increasing potential risks associated with the use of new products as well as an increasing number of possible cases where unknown risks may arise suggests that the fair balance of the apportionment of risks between the consumer and the producer that the Directive is trying to achieve is shifting and not for the benefit of the consumer protection.

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