

Lohsse | Schulze | Staudenmayer (Eds.)

Smart Products

Münster Colloquia on EU Law and the Digital Economy VI



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Nomos

Sebastian Lohsse | Reiner Schulze
Dirk Staudenmayer (Eds.)

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An Introduction

‘Smart Products’ – A Focal Point for Legal Developments in the Digital Economy

*Sebastian Lohsse, Reiner Schulze & Dirk Staudenmayer**

As smart products become increasingly common, EU law faces new challenges. In this phase of the transition to the digital economy, the sale of such products and other contracts relating to such products pose new questions. Whereas certain questions have already been addressed by the ‘Digital Contract Directives’ – the Sale of Goods Directive (SGD) and the Digital Content Directive (DCD)¹ – these Directives arguably do not cover all aspects to be dealt with even at present. Moreover, especially with the increasing integration of artificial intelligence (AI), smart products will remain a focal point for legal developments in the digital economy. This is true not only for contract law but also for tort law when taking into account the perspective of smart products becoming able to act autonomously. This article shall serve as an introduction both to current and future aspects of the legal developments in these two fields.

I. What are ‘smart products’?

In a nutshell, smart products are goods which are equipped with digital content, whether embedded in the goods or not, or which are connected with digital services.

* Sebastian Lohsse und Reiner Schulze are Professors of Law, Centre for European Private Law, University of Münster. Dirk Staudenmayer is Head of Unit Contract Law, DG Justice and Consumers, European Commission and Honorary Professor at the University of Münster. The present contribution expresses only the personal opinion of the authors and does not bind in any way the European Commission.

1 Directives 2019/770 on certain aspects concerning contracts for the supply of digital content and digital services (DCD) and 2019/771 on certain aspects concerning contracts for the sale of goods (SGD), OJ 22.5.2019, L 136/1 and L 136/28; on both Directives see *Staudenmayer*, The Directives on Digital Contracts: First Steps Towards the Private Law of the Digital Economy (2020), ERPL, 219 et seq.; for a more detailed analysis of the DCD see the article-by-article commentary, Schulze/Staudenmayer (eds.), EU Digital Law (2020).

1. Definition in EU law

Smart products are already indirectly defined in the EU *acquis*. The legislator of the ‘Digital Contracts Directives’ wanted to include (not all, but) some smart products into the scope of the SGD. It calls this sub-category ‘goods with digital elements’ and defines them as ‘any tangible movable items that incorporate or are inter-connected with digital content or a digital service in such a way that the absence of that digital content or digital service would prevent the goods from performing their functions’.² The digital content or digital service incorporated in or interconnected with such goods with digital elements are included in the scope³ of the SGD if they are provided with the goods under the sales contract.⁴ In this context it is irrelevant whether digital content is already installed at the time of the conclusion of the contract of sale or whether it is, according to the contract, installed only later.⁵

The effect of this is that the consumer-buyer of such goods would have remedies for a lack of conformity of the goods themselves and of the digital content or digital service incorporated in or interconnected with them. If, however, the criteria of the definition of goods with digital elements (or of the SGD scope requiring the supply under the sales contract) are not fulfilled, but the conformity of the digital content or digital service incorporated in or interconnected with goods is at stake, the consumer remedies would be determined according to the DCD.⁶ It was the intention of the legislator that the two Directives be complementary;⁷ this is manifested in the drafting of the respective articles and recitals.⁸

2 Article 2 No 5 (b) SGD and Article 2 No 3 DCD.

3 And consequently excluded from the scope of the DCD, see Articles 3 (4) and 2 No 3 DCD.

4 Article 3 (3) SGD. Whether goods are provided under the sales contract with digital elements, is to be determined either by express provision in the contract or as the result of an interpretation of the sales contract, see Recitals 15 SGD and 21 DCD, which also contain an example for such an interpretation. Both Directives contain the same presumption, namely that in cases of doubt, the sales contract covers these digital elements, see Articles 3 (3) 2 SGD, 3 (4) 2 DCD. Whether the consumer has also concluded a license agreement with the third party which supplies the digital content is not pertinent, see Recitals 15 and 21 SGD.

5 Recitals 14 SGD and 21 DCD; see also examples in Recitals 21 DCD and 15 SGD.

6 Articles 3 (1), (3) DCD; Recital 22 DCD and 16 SGD with examples.

7 Recitals 20 DCD, 13 SGD.

8 Recitals 20 – 22 DCD, 13 – 16 SGD.

Therefore, the basic element of the definitions and scope provisions of the 'Digital Contracts Directives' can be used to define smart products, namely 'any tangible movable items that incorporate or are inter-connected with digital content or a digital service'.

2. Why are smart products important for the Digital Economy?

The importance of smart products is firstly linked to the rise of the Internet of Things (IoT) as such. The number of IoT devices has evolved very rapidly and the increase over recent years was even considerably stronger.⁹ If one takes one of the estimates – 46 billion IoT devices by the end of 2021 – as an example, one could say statistically that in 2021 every human on this planet had around 6 IoT devices. In reality, this saturation level is obviously unevenly spread; the average number of connected devices per household in the US in 2020 for instance, was 10.¹⁰

Within this overall development of the IoT, the increasing number of smart homes has a strong impact on the use of smart products. The number of smart homes in Europe and North America was estimated to have reached 102.6 million in 2020.¹¹ North America is the more advanced smart home market, with an estimate of 51.2 million smart homes, i.e. 35.6 % of all homes. The strong market growth of 18.7 % in 2019 and 2020 is expected to continue and to reach close to 78 million homes by 2024. This would mean that more than half (53 %) of all homes have smart products. In Europe there was a total of 51.4 million smart homes estimated at the end of 2020. This is forecasted to exceed 100 million homes at the end of 2024, representing a market penetration of 42 %.

9 Obviously there are different figures, but all statistics agree on a very strong growth rate; see for instance *How Many IoT Devices Are There in 2021? More than Ever!* (techjury.net) (last accessed on 22.08.2021) which point out, referring to Juniper Research, that the number of IoT devices in 2021 will reach 46 billion, constituting a 200 % increase compared to 2016; see also *Number of IoT devices 2015–2025* (statista.com) (last accessed on 22.08.2021) which forecast that the number of IoT connected devices installed worldwide will grow from 15, 41 in 2015 to 75, 44 in 2025 (in billions).

10 See *How Many IoT Devices Are There in 2021? More than Ever!* (techjury.net) (last accessed on 22.08.2021), referring to Statista.

11 See for this and the following figures *IoT News – The number of smart homes in Europe and North America will reach 179 million in 2024* (Iotbbusiness-news.com) (last accessed on 22.08.2021), referring to a research report from the IoT analyst firm Berg Insight.

In parallel with this, the sale of smart products is a fast-growing trend in many retail sectors. Amazon's Echo Dot already became the best-sold article on amazon.com for three Christmas sales in a row (2016, 2017 and 2018)¹². Among the most sold product categories in 2021 were digital assistants like the ones produced by Google and Amazon, which can be used for shopping but also controlling smart homes, and other smart products dealing with different aspects of security in a smart home (e.g. smart door cameras, bells and locks; air quality monitors and smoke alarms; IT-security) or used to switch on and off lights, household appliances, media, heating etc.¹³

II. Smart products in present contract law

1. New dimensions for European contract law

From a contract law perspective, smart products are a key element of the SGD and the DCD, with each furthering the development of European contract law, adding a new dimension in the form of the supply of digital content and of the sale of goods with digital elements. Both Directives primarily concern consumer contracts (B2C), albeit with an impact on commercial contracts (B2B) due to the trader's redress against earlier links in the chain of contracts (Article 18 SGD; Article 20 DCD).

The SGD extends beyond the 1999 Consumer Sales Directive¹⁴ by responding to challenges posed by digitalisation, especially through its provisions on goods with digital elements. The SGD covers many different types of smart products – from smartphones and laptops to autonomous household appliances and vehicles. The DCD concerns core aspects of contract law regarding the supply of digital content and digital services, but does not draw fine distinctions between the contract model applicable to the supply. This includes, as in the SGD for sales contracts, particularly the

12 <https://voicebot.ai/2018/12/26/amazon-echo-device-sales-break-new-records-alexa-tops-free-app-downloads-for-ios-and-android-and-alexa-down-in-europe-on-christmas-morning> (last accessed on 22.08.2021).

13 For the list of list of the most sold IoT Devices in 2021, see 18 Most Popular IoT Devices in 2021 (Only Noteworthy IoT Products) (softwaretestinghelp.com) (last accessed 22.08.2021).

14 Directive 1999/44/EC of the European Parliament and of the Council of 25 May 1999 on certain aspects of the sale of consumer goods and associated guarantees [1999] OJ L 171/12.

conformity of such products and the consumer's remedies (including the respective obligations following the termination of contract) as well as the possibility for the trader to modify the performance rendered. The DCD covers the 'physical' smart products where the tangible medium merely serves to carry the digital content (Article 3 (3) DCD), such as a USB-Stick. Furthermore, taking into account the above mentioned determination of the scope of this Directive, it extends to a much wider spectrum of smart products. Regardless of the manner of supply, the Directive not only covers simple applications in the 'smart home' but also complex forms of AI.

Through the provisions of these 'Digital Contract Directives', the sale of goods with digital elements and the supply of digital products, with the different elements of smart products, are integrated into the structures and concepts of European contract law which have emerged over the past decades, particularly through the Consumer Sales Directive. Nonetheless, the Directives also develop these concepts and structures to take account of the changes resulting from digitalisation, including the importance and characteristics of smart products.¹⁵ The combination of continuity and innovation is readily apparent in the notion of conformity, which serves as a basic conceptual framework for both Directives, albeit with some differences.¹⁶ Both Directives have not only adopted the central notion of conformity from the Consumer Sales Directive but have also made further additions (such as 'reasonable expectations'). Whereas the SGD adopts these concepts for the sale of goods, the DCD applies them beyond the sale of goods in principle to all different types of contracts concerning digital content or digital services. In this respect, a concept that was originally at home in sales law now provides a conceptual framework for general contract law.¹⁷ Furthermore, both Directives have developed the concept in two respects. With regard to their approach in general, the relationship between the subjective and objective criteria for conformity have changed vis-à-vis the Consumer Sales Directive to favour an objective standpoint. For the specific requirements for digital products, a significant innovation with extensive consequences for contract practice can be seen in particular in the trader's update obligations and (under the Digital Content Directive) the ability to modify the digital content or digital service.

15 Schulze/Zoll, *European Contract Law* (3rd edn, 2021), § 1 para. 65 et seq.; Staudenmayer, *Die Richtlinien zu den digitalen Verträgen* (2019), ZEuP, 663.

16 Schulze, *Die Digitale-Inhalte Richtlinie* (2019), ZEuP, 665 (709).

17 Schulze/Zoll, *European Contract Law* (3rd edn, 2021), § 5 para. 37 et seq.

2. Update obligations

a) *An innovative approach*

The update obligations form a central aspect of the provisions on conformity under the ‘Digital Contract Directives’. Such obligations are included both in the subjective (Article 6 (d) SGD; Article 7 (d) DCD) as well as in the objective requirements (Article 7 (3), (4) SGD; Article 8 (2), (3) DCD). The need for such rules was highlighted in particular in relation to the importance of security updates.¹⁸ However, the update obligations are by no means limited to such type of updates. According to the wording of the legislation, the trader is obliged to supply the consumer with updates as stipulated in the contract (Article 6 (d) SGD; Article 7 (d) DCD) and updates that are necessary to keep the good or digital product in conformity (Article 7 (3) SGD; Article 8 (2) DCD).

Accordingly, the update obligations have a dual link to the notion of conformity. On the one hand, from an objective perspective the obligation itself, its scope and content are measured against what is necessary to maintain all other subjective and objective requirements regarding conformity. For example, for the conformity of goods with digital elements or of a digital product, the suitability for purposes for which the goods/digital product would normally be used may be necessary (Article 7 (1) (a) SGD; Article 8 (1) (a) DCD). An update obligation may arise for the trader if, due to a change in the technology, this suitability can only be maintained via an update. On the other hand, the correct performance of the update obligation is itself part of conformity. There is thus a non-conformity if the trader does not supply an update although this is provided in the contract itself or is necessary for the objective conformity with the contract. The same applies where the trader supplies an update, but this does not satisfy the requirements under Article 7 (3) SGD or Article 8 (2) DCD. In such cases the remedies for non-conformity under Article 13 et seq. SGD or Article 11, 14 et seq. DCD are available to the consumer (in principle, bringing into conformity, price reduction or termination).

Furthermore, the new provisions on updates are characterised by a two-pronged approach. Whereas they oblige the trader to supply digital content in the form of updates, this supply obligation is also combined with an information duty regarding the update itself. The trader is to inform the consumer of the availability of the update and of the consequences of

18 Recitals 30 und 31 SGD; Recital 47 DCD.

the failure to install it (Article 7 (4) (a) SGD; Article 8 (3) (a) DCD).¹⁹ The consumer can then decide whether to install the update. However, this not only provides an informed basis for the consumer's decision (not) to take action but also limits the scope of the trader's responsibility: the trader is not liable for any lack of conformity resulting solely from the lack of the relevant update if he has complied with the aforementioned information duty, yet the consumer has failed to install the update within a reasonable time.

The provisions on update obligations are especially innovative as they provide for further performance as requirement for conformity in contracts that are primarily structured around the single exchange of performances.²⁰ They therefore deviate from the traditional approach in sales law (and also in European consumer sales law), namely that the relevant point in time for conformity is at the passing of risk or at the time of delivery. In many cases the update obligation therefore extends the trader's responsibility for conformity beyond such point in time. The duration is determined by what the consumer may reasonably expect given the type and purpose of the goods and the digital elements or of the digital product, and taking into account the circumstances and nature of the contract (Article 7 (3) (a) SGD; Article 8 (2) (b) DCD). Depending on these reasonable expectations, the update obligation can even extend beyond the period of liability for non-conformity.²¹

This innovative approach is also linked with a new distinction regarding the temporal dimension. For contracts for the single act of supply or for a series of such individual acts of supply, the performance of the primary obligation is to be at a particular point in time (e.g. supplying a game via downloading to a smart device or sending each week a link to the next module in an online course). For such contracts the digital product typically remains in the sphere of the consumer, who has the possibility to access and use the digital product for an indefinite period.²² As just mentioned, the duration of the update obligations is determined by what the consumer may reasonably expect. This is distinguished from contracts for the continuous supply over a period of time (e.g. a subscription contract for music or for cloud-storage). The supply can either be for a defined

19 For details see EU Digital Law/*Staudenmayer*, Article 8 DCD para. 125 et seq.; HK-BGB/*Schulze*, § 327f BGB para. 6.

20 *Schulze/Zoll*, European Contract Law (3rd edn, 2021), § 5 para. 47 et seq.

21 Recital 47 DCD. For details, EU Digital Law/*Staudenmayer*, Article 8 DCD para. 129 et seq.; HK-BGB/*Schulze*, § 327f BGB para. 7 et seq.

22 Recital 56 DCD.

period of time (e.g. a fixed two-year subscription contract) or for an indefinite period (e.g. a subscription contract which continues to run until the consumer decides to cancel). The decisive feature is the obligation for the trader to continue to supply the digital product to the consumer throughout this period. In such cases the periods of time for the primary obligation to supply (supply period) and for the update obligation overlap, assuming of course that the DCD applies. For contracts for goods with digital elements (such as the pre-installed operating system on a tablet-PC), however, the SGD provides an approach that is tailored to sales law (on the basis of a two-year liability and update period, with extensions for supply periods longer than two years and with the possibility for Member States to extend such time limits (Article 7 (3) (b) in conjunction with Article 10 (2), (5) SGD).

This distinction in the ‘Digital Contract Directives’ between single supply (or a series of individual acts of supply) and continuous supply over a period of time introduces a new structural element into European contract law. Its significance is not limited to the provisions on conformity; it also concerns the time periods and duration for liability, the burden of proof, price reduction and the reimbursement following termination (Articles 10 (2), (5), 11 (3) SGD; Articles 11 (2), (3), 12 (2) and (3), 14 (5), 16 (1) DCD). In each instance the new concept within the ‘Digital Contract Directives’ divides the spectrum of contracts falling within their scope using an approach differing from the distinction between sales and service contracts or the traditional classification of contract types under national laws.²³

b) Problems and regulatory gaps

It is to be expected that a number of questions arise from new technologies in the form of smart products and from a new legal approach, such as the update obligations. Such questions require clarification through legal doctrine and case law. Some of these questions can only be outlined here, but others are covered in more depth in the contributions to this volume. The legal nature of update obligations requires particular attention from a doctrinal perspective, requiring consideration that the update obligations

23 *Schulze*, Die Digitale-Inhalte Richtlinie (2019), ZEuP, 665 (714 et seq.), also on the differences in relation to German law; *Wendland*, Sonderprivatrecht für Digitale GüterInhalt (2019), ZVglRWiss, 191 (210 et seq.)

take the form of individual measures (i.e. through the supply of the individual update for the smart product during the relevant time period), yet such acts do not signal the end of the performance obligation. It will often rather be necessary for the trader to constantly monitor the technological developments surrounding the smart product in order to determine whether there is the need for an update and, if so, the suitable content thereof. In this respect the update obligation may be considered a ‘continuous obligation’.²⁴

Likewise, the relationship between the update obligations and the corresponding information duties also needs to be considered. Here the duty to inform the consumer of the necessary update (Article 7 (3) SGD; Article 8 (2) DCD) may need to be viewed as being ancillary to the primary obligation (supplying the update).²⁵ Contrastingly, an ‘obligation’ for the trader to inform the consumer not only about the availability of the update but also of the consequences of failing to install it (Article 7 (4) (a) SGD; Article 8 (3) (a) DCD) is rather to be understood as an *Obliegenheit*, to use the German legal term: in the event of breach the consumer does not have a claim to demand performance (or damages), but performance is merely in the trader’s interest.²⁶ Similarly, it is also necessary to determine the legal nature of the installation of the supplied update by the consumer (Article 7 (4) SGD; Article 8 (3) DCD).²⁷ The consumer is free to decide whether to install the update, but from a legal perspective the installation is in the consumer’s own interest as otherwise he would exclude the trader’s liability.

Further consideration will also be needed with regard to determining the duration of the update obligation for smart products in cases of single supply or a series of individual acts of supply. In light of the various different circumstances surrounding supply the legislator refrained from setting a strict time period to subject the duration of the update obligations to a uniform period. This gain in flexibility is, however, offset by the loss of legal certainty for the parties. Developing ‘case groups’ (first through legal

24 Wendehorst, Aktualisierungen und andere digitale Dauerleistungen, in: Stabenheimer/Wendehorst/Zöchling-Jud (eds.), *Das neue Gewährleistungsrecht für Waren, digitale Inhalte und digitale Dienstleistungen* (2019), p. 111 (118); *Schulze/Zoll*, *European Contract Law* (3rd edn, 2021), § 5 para. 47.

25 HK-BGB/Schulze, § 327f BGB para. 6; see for the classification as a primary obligation, however, *Schneider*, *Impulse und Probleme der Digitale-Inhalte-Richtlinie und deren Umsetzung im BGB* (2021), ITRB, 182 (189).

26 On *Obliegenheit* see German Civil Code/Schulze, § 242 BGB para. 26.

27 See the contribution by Janssen, in this volume.

doctrine but then increasingly by the courts) could contribute to affording greater clarity to Article 7 (3) (a) SGD and Article 8 (2) (b) DCD, especially in contract practice, and increase legal certainty.

However, it may be doubted whether the law *de lege lata* overcomes the highlighted weaknesses of consumer protection concerning agreed deviations from the update obligations.²⁸ According to Article 7 (5) SGD and Article 8 (5) DCD, there is no lack of conformity if, at the time of the conclusion of the sales contract, the consumer was specifically informed that a particular characteristic was deviating from the objective requirements for conformity and the consumer expressly and separately accepted that deviation when concluding the contract. In practice the trader therefore merely has to provide the consumer with a pre-formulated text on the deviations from the update obligation with an infamous ‘I have read and agree to’ box at the time of concluding the contract. In short, a simple tick of a box releases the trader from his update obligation. Recital 49 DCD expressly provides that the requirement of ‘active and unequivocal conduct’ by the consumer can be satisfied by ‘ticking a box’. Even though the recitals to directives do not bind the courts,²⁹ it is questionable whether the ECJ will develop a stricter standard for ‘active and unequivocal conduct’ than is given in Recital 49 DCD.³⁰

The question of damages – more precisely the harmonisation of damages for non-conformity – is a further problem surrounding the update obligations in relation to smart products and the conformity requirements in general. This is not addressed in the ‘Digital Contract Directives’ and as such is a matter for future European legislation. The proposal for the DCD did contain a rudimentary rule for damages,³¹ but this was ultimately removed during the legislative process. Recital 73 DCD indeed acknowledges that a right to damages exists in all Member States, but the requirements, scope and content of the damage claims are certainly not the same across the Member States (e.g. the question of strict or objective

28 See e.g. *Spindler*, Umsetzung der Richtlinie über digitale Inhalte in das BGB (2021), MMR, 451 (456).

29 See C-162/97 *Nilsson* ECLI:EU:C:1998:554, para. 54.

30 On the question of the extent of the protection under the Unfair Terms Directive *Spindler*, Umsetzung der Richtlinie über digitale Inhalte in das BGB (2021), MMR, 451 (457 et seq.).

31 Article 14 COM(2015) 634 final. For detail see *Machnikowski*, Regulation of Damage on National or European Level, in: Schulze/Staudenmayer/Lohsse (eds.), Contracts for the Supply of Digital Content: Regulatory Challenges and Gaps (2017), p. 141.

liability, compensation of consequential losses,³² evidence of the scope of loss and for future loss, etc.). This can have a considerable effect on the level of consumer protection in relation to smart products. Termination or price reduction will often offer no practical remedy where there is a failure to supply an update (especially as there will often not be a comparable alternative). Damages are also more effective to ensure conforming performance by the seller or supplier of smart products.³³ However, the lack of harmonisation is not only a disadvantage for the level of consumer protection but also for the objective of attaining a functioning internal market. In a cross-border respect the differing national rules concerning damage claims make it difficult for businesses to determine whether there is indeed a claim and, if so, the extent thereof. This is perhaps the greatest risk for a business in the event of non-conforming performance.

A particularly burdensome deficit in the provisions on update obligations may ultimately lie in the choice of addressee. According to the 'Digital Contract Directives' the update obligations are to be performed by the trader who concluded the sales or supply contract with the consumer. In fact, it is often a third party who is in the position to prepare and execute the update – this will often be the manufacturer, but could also include a licence holder or other provider. There is thus the question whether – and in any case how – the consumer shall be enabled to enforce claims against such third parties for an update of a smart product or for liability for failure to supply an update. Additionally, attention is also to be directed towards the legal framework surrounding the responsibility for the update between the various different links in the supply chain.³⁴

3. Modification of digital products

a) The trader's right to modify digital products

The update obligations are closely linked to the provisions on the trader's unilateral contractual right to modify the digital content or digital service (Article 19 DCD). The trader may often deem it necessary (e.g. for security purposes or in light of new technologies or market developments) not on-

32 *Martens*, Contracts for the Supply of Digital Content – Consequential Loss, in *ibid.* p. 155.

33 *Schulze*, Die Digitale-Inhalte Richtlinie (2019), ZEuP, 665 (720 et seq.).

34 See the contributions by *H. Schulte-Nölke* and *C. Wendeborst*, in this volume.

ly to supply updates to maintain conformity but to make new versions of the digital product available ('upgrade'). Through such upgrades the trader modifies the contract with the consumer in relation to the characteristics of the product. However, in such circumstances the consumer may wish to continue to use the earlier version of the product (e.g. due to familiarity with the features). This would not accord with the trader's interest in only supplying one (or few) versions, for example to avoid the obligation to supply updates to older versions. The consumer would not be sufficiently protected in such a conflict of interests if freedom of contract allowed unrestricted contractual agreements on the trader's unilateral right to modify the digital product. Article 19 DCD therefore serves to balance the interests of the parties relating to upgrades.

The provision does not afford the trader with a comprehensive right to modify the digital product. It rather only covers cases in which the contract provides for such a right.³⁵ Article 19 DCD determines the permitted content and in particular the limitations and consequences of the right to modify. Its scope is restricted to modifications of the digital content (i.e. measures which maintain the essence of the product but do not in effect replace it with another).³⁶ Furthermore, it is limited to contracts for the continuous supply as per Article 8 (2) (a) DCD (in contrast to contracts for single supply or for a series of individual acts of supply). For such contracts the right to modify the digital contract extends beyond the contractually-owed updates under Article 7 (d) and Article 8 (2) (a) DCD and thus leads to a deviation from the performance due under the contract. Article 19 (1) DCD concerns all such changes, irrespective whether they are beneficial or detrimental (or neither) to the consumer. According to this provision, modifications of the digital product beyond what is necessary to maintain conformity are only permitted where certain requirements are satisfied. In contrast Article 19 (2) and (3) DCD afford the consumer the right to terminate the contract as a means to protect the consumer from modifications that limit the access or use of the product. The provision neither affects the role of the Unfair Terms Directive³⁷ in assessing the contract

35 For details see EU Digital Law/Wendland, Article 19 DCD para. 10; HK-BGB/Schulze, § 327r BGB para. 1 et seq.

36 Spindler, Umsetzung der Richtlinie über digitale Inhalte in das BGB (2021), MMR, 451 (528, 531).

37 Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts [1993] OJ L 95/29.

terms concerning modification rights nor the possibility for the parties to conclude a new contract for the supply of the digital product.³⁸

b) Open questions

A number of questions and problems soon become apparent when looking at the effect of Article 19 DCD in practice. For example,³⁹ under Article 19 (1) (a) DCD the contract must allow and provide a valid reason for such a modification. The abstract nature of this condition means that there is a lack of detail surrounding whether and to what extent the condition is satisfied in particular circumstances. Article 19 (1) (b) DCD requires clarification whether the wording 'without additional cost to the consumer' also covers contracts in which the cost is not monetary but in fact the supply of personal data. Where the legal effects of Article 19 (1) are concerned, it remains to be considered how and with what restrictions the trader may make modifications (in particular whether he may independently engage with the consumer's digital environment⁴⁰) and whether the consumer does not just need to tolerate the modification but is obliged to cooperate during the process. The contributions to this volume cover further questions surrounding the right to modify digital products. The scope covers the general problems of securing the consumer's power to freely consent to modifications (and the possible limitations thereof) to the question whether a corresponding right to modify also applies to goods with digital elements.⁴¹ The effect of the new provisions on modification on contract design is of course especially important for contract practice.⁴²

4. From transposition to transition

The update obligations and the right to modify digital products are prominent examples for the extensive development experienced by European contract law over recent years. There are of course other developments that cannot be discussed in detail here, yet their transposition can give national

38 Recital 75 DCD.

39 On the following examples, see HK-BGB/*Schulze*, § 327r BGB para. 4 et seq.

40 Against such possibility, *Möllnitz*, *Änderungsbefugnis des Unternehmers bei digitalen Produkten* (2021), MMR, 116 (120).

41 See the contribution by *K. Sein*, in this volume.

42 See the contribution by *I. Conrad*, in this volume.

law important new features. For instance, the DCD has completed the system of performance obligations and remedies for non-performance. The Directive regulates not just the obligation to perform in conformity and the consequences of non-conformity but also sets the obligation for the trader to perform (by supplying the digital product) and the corresponding consequences for non-performance (Articles 5 (1), 11, 13 DCD).⁴³ The ‘Digital Contract Directives’ provide that the consumer exercises the right to terminate the contract by making a corresponding statement to the trader (in accordance with the tendency in modern contract law, but deviating from the tradition in some Member States in which termination could only be effected by the court). Furthermore, the provisions on termination under the DCD cover contracts for single supply as well as ‘long-term’ contracts, including those contracts described in some legal systems as *Dauerschuldverhältnisse* (‘contracts for the performance of a continuing obligation’). They therefore differ from the tradition in German law to provide separate rules for the *Rücktritt* in single supply contracts (§ 314 BGB; revocation) and the *Kündigung* in such *Dauerschuldverhältnisse* (§ 323 BGB; termination). Beyond this, the DCD now provides European consumer contract law with a system of the rights and obligations of the parties in the event of termination. This covers traditional obligations (such as reimbursement, Article 16 (1) DCD) as well as new types of rights and obligations tailored to the features of digital products (such as the prohibition on the use of data, the right to retrieve data, the obligation to refrain from using the digital product; Articles 16 (3)–(5), 17 (1) DCD).

The discussion of the further development of the concept of conformity by the new European legislation should also mention the other innovative approaches which concern smart products or digital products. This includes, for example, the provisions on the integration into the digital environment (Article 9 DCD) and on the installation of goods with digital elements (Article 8 (b) DCD) which expands on the model in Article 2 (5) Consumer Sales Directive. Even further, the provisions on conformity and the corresponding definitions in the ‘Digital Contract Directives’ feature numerous concepts that are of fundamental importance for a modern contract law that heeds the economic and social significance of smart products and digital products. For example, this concerns many of the definitions in Article 2 SGD and Article 2 DCD, such as ‘digital content’,

43 Schulze/Zoll, *European Contract Law* (3rd edn, 2021), § 5 para. 11 et seq.; on the controversial question whether the consumer has a corresponding claim, see § 6 para. 56.

'digital service', 'goods with digital elements', 'integration' and 'digital environment'. It also affects criteria, such as taking account of (personal) data as counter-performance (Article 3 (1) DCD) and technical standards (Article 7 (1) (a) SGD; Article 8 (1) (a) DCD), the inclusion of installation instructions (Articles 6 (c), 7 (1)(c) SGD; Articles 7 (c), 8 (1) (c) DCD), the provisions on the most recent version (Articles 8 (6) DCD) or the protection where third-party rights are violated (Article 9 SGD; Article 10 DCD).

These new approaches and concepts have now found their way into national law through the transposition of the Directives. They thereby belong to the core aspects of consumer law in all EU Member States. However, it is conceivable that the transposition into national law does not just mean a step towards further harmonisation of consumer law in the EU and adjustments to the digital age. It rather also appears feasible that in several cases the effects can extend beyond the scope of the Directives. For instance, it may be worthwhile for the national legislator and courts to use several of the aforementioned concepts and criteria in neighbouring fields of consumer law or indeed even in the B2B context. The latter is a distinct possibility because the application of the concepts covered in the Directives extends anyway to particular B2B legal relationships because of the provisions on redress (Article 18 SGD; Article 20 DCD). Applying different meanings to the notions of functionality, compatibility and interoperability (Article 8 (1) (b) in conjunction with Article 2 Nos 10–12 DCD) in cases falling outside the DCD would hardly be an ideal solution in practice. It therefore remains to be seen whether in the near future several of the new Directives' approaches and concepts provide a catalyst for further approximation of EU contract law in the digital age.

III. Prospects for future legal developments on smart products in both tort and contract law

1. Smart products in tort law

Whereas European contract law has already reacted, albeit somewhat incomplete, to the questions posed by smart products for the time being, the European legislator has not yet addressed tortious liability to a comparable extent, although it has not, of course escaped the attention of the European institutions. Challenges in this area are manifold and will become increasingly urgent with the future integration of elements of AI into smart products.