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Retention of title clauses in PaaS contracts

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Retention of title clauses in PaaS contracts

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Executive summary

In ***Product-as-a-service*** **(PaaS) contracts**, the **service provider** remains the **owner** of the **product** offered as a service and only grants **rights of use** to the **customer**. However, when that product is **integrated** into an immovable good owned by the customer, the service provider's **ownership right** could be lost. This research report analyzes whether **the current legal framework is sufficient to prevent this, or whether the legislation needs to be amended**.

The main research question of this report is whether the parties to a PaaS contract can use contract law to prevent the service provider from losing property rights to the product offered as a service by relying on contract law, without undermining the protection of third parties provided by property law. A challenge in a PaaS contract is that the product can be integrated ('incorporated') into an immovable good owned by the customer. If the product can be seen as an inherent component of that good, the right of ownership of the service provider is threatened. In application of the unity principle, incorporation and accession will automatically take place – by operation of law – and the customer will become the owner of the incorporated service product on the basis of property law. From a third-party perspective, the customer appears to own the product. While, internally, no incorporation or subsequent accession was agreed upon in the contract, the service provider may still face challenges with third parties. For instance, when a third party, namely a creditor of the customer, seizes the customer's good. The third party may reasonably assume that the product offered as a service, once incorporated into the customer's good, is owned solely by the customer.

Our analysis leads us to the following normative suggestions:

1. **Preservation of the unity principle and existing property law rules**

We do not advocate the abolition of the unity principle, given its justified reasons for existence. Additionally, a modification of Book 3 of the Civil Code, including the legal provisions on the interpretation of inherent components (article 3.8 CC) and the right of accession (article 3.177 and following CC), seems undesirable, considering the recent reform of this legislation and the fundamental nature of these provisions.

2. **Consideration of a fiduciary ownership right for circular applications**

Within the broader reform of the Civil Code, federal legislation on personal and property securities, including retained ownership, is currently under review. Given this opportunity, and considering the importance of retained ownership as a legal solution for product-service systems, one could argue for the introduction of a so-called 'fiduciary ownership for circularity purposes' in the Pledge Act as an explicit statutory exception to the unity principle. Such a fiduciary ownership right could ensure that the service provider can reclaim the product offered as a service, even if it has become an inherent component of another good, without going against the legal nature of retained ownership as a security right.

Although the introduction of a fiduciary ownership for circularity purposes would be a significant step in creating a legal framework that enables and stimulates PaaS contracts, some concerns could be raised.

- Any change to the Pledge Act to introduce a fiduciary ownership for circularity purposes should not infringe upon the closed system of property rights (the so-called 'numerus clausus' principle). This means that the legislature can either develop the fiduciary ownership right within the framework of the current ownership right (Article 3.50 CC) or within that of retention of title clauses (Pledge Act), or explicitly create a new property right altogether.
- The creation of a fiduciary ownership for circularity purposes should not be used to circumvent the right of accession, which remains the appropriate mechanism to make an exception to the principle of accession and to safeguard the ownership rights of the service provider. The right of accession also has an established method for its disclosure to third parties (more on this to follow).
- It is still unclear in which registry a fiduciary ownership for circularity purposes should be published. Given its nature, it could be published in the pledge registry, similar to ordinary retention of title clauses. Low costs and quick processing times would be advantages. However, given their comparable functions, it could also be an option to require publication in the mortgage registers, as is the case with the right of accession. In that case, the parties would face higher costs (due to the required notarial deed) and a longer duration, but there would be greater legal certainty. Additionally, it could be considered to publish the fiduciary ownership for circularity purposes in an alternative 'materials registry,' where technical and legal information – including the ownership status – of all materials used in a building are collected.
- It should be noted that amending the Pledge Act (and by extension Book 3 of the Civil Code) is a competence of the federal legislature. The Flemish public authorities would therefore have to suggest these recommendations to the federal legislature.

Authors: C. Borucki and K. De Schepper – in collaboration with D. Gruyaert, B. Keirsbilck and E. Terryn (KU Leuven)

Samenvatting

In ***Product-as-a-Service*** **(PaaS)-contracten** blijft de **dienstverlener eigenaar** van het als een dienst aangeboden **product** en verleent hij enkel **gebruiksrechten** aan de **klant**. Wanneer dat product echter **geïntegreerd** wordt in een onroerend goed dat eigendom is van de klant, verliest de dienstverlener mogelijk het eigen **eigendomsrecht**. Dit onderzoeksrapport analyseert of het **huidige juridische kader toereikend is om dit te voorkomen, of dat de wetgeving dient aangepast te worden**.

De hoofdvraag van dit onderzoek is of de partijen in een PaaS-contract aan de hand van het verbintenissenrecht kunnen voorkomen dat de dienstverlener het eigendomsrecht over het als dienst aangeboden product verliest, zonder daarbij de door het goederenrecht aan derden geboden bescherming te ondermijnen. Een uitdaging bij een PaaS-contract is dat het product kan worden geïntegreerd ('geïncorporeerd') in een onroerend goed dat eigendom is van de klant. Als het product als een inherent bestanddeel van dat goed kan worden gezien, wordt het eigendomsrecht van de dienstverlener bedreigd. Op basis van het eenheidsbeginsel zullen incorporatie en natrekking automatisch – van rechtswege – plaatsvinden op basis van het goederenrecht, waardoor de klant de eigenaar van het geïntegreerd product wordt. Vanuit het oogpunt van derden lijkt de klant de eigenaar van het product te zijn. Hoewel in de interne contractuele rechtsverhouding geen incorporatie of natrekking is overeengekomen, kan de dienstverlener problemen ondervinden met derden. Bijvoorbeeld, wanneer een derde, specifiek een schuldeiser van de klant, beslag laat leggen op het goed van de klant. De derde mag redelijkerwijze aannemen dat het als dienst aangeboden product, wanneer het is geïncorporeerd in het goed van de klant, onder het exclusieve eigendomsrecht van de klant valt.

Onze analyse leidt ons tot de volgende normatieve suggesties:

1. **Behoud van het eenheidsbeginsel en bestaande goederenrechterlijke regels**

   We pleiten niet voor de afschaffing van het eenheidsbeginsel, gezien de gerechtvaardigde bestaansredenen ervan. Ook is een wijziging van Boek 3 van het Burgerlijk Wetboek, inclusief de wettelijke bepalingen over de uitleg van inherente bestanddelen (artikel 3.8 BW) en het recht van opstal (artikelen 3.177 en volgende BW), niet wenselijk, rekening houdend met de recente hervorming van deze wetgeving en de fundamentele aard van die bepalingen.

2. **Overweging van een fiduciair eigendomsrecht voor circulaire toepassingen**

   In het kader van de bredere hervorming van het Burgerlijk Wetboek wordt momenteel de federale wetgeving inzake persoonlijke en zakelijke zekerheden, met inbegrip van eigendomsvoorbehoud, herzien. Gezien deze gelegenheid en gezien het belang van eigendomsvoorbehoud als juridische oplossing voor product-dienstsystemen, zou men kunnen pleiten voor de invoering van een zogenaamd “fiduciair eigendomsrecht voor

circulaire doeleinden” in de pandwet als een expliciete wettelijke uitzondering op het eenheidsbeginsel. Een dergelijk fiduciair eigendomsrecht zou ervoor kunnen zorgen dat de dienstverlener het als dienst aangeboden product kan terugvorderen, zelfs als het een inherent onderdeel van een ander goed is geworden, zonder dat dit in strijd is met de juridische aard van eigendomsvoorbehoud als zekerheidsrecht.

Hoewel de invoering van een fiduciair eigendomsrecht voor circulariteitsdoeleinden een grote stap zou zijn in het creëren van een juridisch kader dat PaaS-contracten zou kunnen stimuleren, bestaan er enkele bezorgdheden:

- Een wijziging van de Pandwet met betrekking tot een circulair fiduciair eigendomsrecht zou geen inbreuk mogen maken op het gesloten systeem van zakelijke rechten (het zogenaamde 'numerus clausus'-principe). Dat betekent dat de wetgever het fiduciaire eigendomsrecht ofwel kan ontwikkelen binnen het kader van het huidige eigendomsrecht (artikel 3.50 BW) of het eigendomsvoorbehoud (onder de Pandwet), ofwel uitdrukkelijk een nieuw zakelijk recht moet creëren.
- De creatie van een circulair fiduciair eigendomsrecht zou niet mogen worden gebruikt om het opstalrecht te omzeilen, dat bij voorkeur het geschikte mechanisme blijft om een uitzondering op de natrekking te maken en de eigendomsrechten van de dienstverlener te waarborgen. Het opstalrecht kent tevens een gevestigde methode voor de openbaarmaking ervan gelet op de tegenwerpelijkheid aan derden.
- Het is nog onduidelijk in welk register een circulair fiduciair eigendomsrecht zou moet worden gepubliceerd. Gezien zijn aard zou het in het pandregister kunnen worden gepubliceerd, zoals het gewone eigendomsvoorbehoud. Lage kosten en een snelle afhandelingstijd zijn dan voordelen. Gezien hun vergelijkbare functies, zou het ook een optie zijn om publicatie in de hypotheekregisters te vereisen, zoals bij het opstalrecht het geval is. In dat geval kijken de partijen tegen hogere kosten (vanwege de vereiste notariële akte) en een langere duur aan, maar is er tegelijkertijd grotere rechtszekerheid. Daarnaast zou kunnen worden overwogen om het circulair fiduciair eigendomsrecht te publiceren in een alternatief ‘materialenregister’, waarin technische en juridische informatie, inclusief de eigendomsstatus, van alle materialen die in een gebouw worden gebruikt, worden verzameld.
- De wijziging van de Pandwet is een bevoegdheid van de federale wetgever. De Vlaamse overheid zou deze aanbevelingen dus aan de federale wetgever moeten suggereren.

Acknowledgement

This research report is based on the work done by Kato De Schepper as part of her doctoral research on the unity principle in property law and its impact on the transition to a circular economy at the research Institute of Property Law at the KU Leuven, under the supervision of prof. dr. Vincent Sagaert and prof. dr. Dorothy Gruyaert.

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1 Introduction

1.1 Previous research report

In the research report on model clauses for Product-as-a-Service (PaaS) contracts we briefly touched upon issues regarding the ownership of the product offered as a service, in particular the question how the service provider can ensure that no legal title to the product is lost.[1] In that report we proposed model clauses to address said issues based on the current state of the law and existing suggestions in doctrinal literature, with a focus mostly on the internal rights and obligations between the contracting parties. In this research report we delve deeper into this topic with the aim of offering more extensive insights and suggestions, expanding on the external effects of the PaaS contract towards third parties. For this endeavor we rely on the ongoing PhD research project of Kato De Schepper (KU Leuven).

1.2 Problem statement

1.2.1 Risk to the service provider of losing ownership

A preliminary note to this problem statement is that it is written concisely in the assumption that the reader of this research report is familiar with core principles of Belgian property law. However, we understand that that assumption may not be valid. For that reason, a following section contains definitions and descriptions of several fundamental property law concepts (and some adjacent contract law concepts) that are essential to the subject matter of this research report. In light of the recent reform of Belgian property law and the highly theoretical nature of this research report, such a refresher is useful even for seasoned experts.

The main focus of this research report is the service provider's right of ownership of the product offered as a service under a PaaS contract.[2] When entering such a contract, the service provider has no intention whatsoever of transferring ownership. Instead, customers receive the right to use the product. Customers merely have the product in their factual detention[3] without – at

[1] This research report can be consulted at https://ce-center.vlaanderen-circulair.be/nl/publicaties/publicatie-2/30-model-clauses-for-product-as-a-service-paas-contracts.

[2] For an extensive explanation of the meaning of this term, see the research report on model clauses for PaaS contracts. In brief, in the current research report PaaS contracts are understood to mean use-oriented product-service-systems (PSS). Sometimes result-oriented PSS are also labelled PaaS (and in any case use-oriented and result-oriented PSS are both seen as 'access-based consumption'). The contents of this research report are relevant to result-oriented PSS as well, as the same questions on ownership arise in those systems. Only the term PaaS contract is used in this research report, but the legal principles outlined in the research report apply to both types of PSS, unless it is stated otherwise. Because of their translative nature (i.e., there is a transfer of ownership), product-oriented PSS are excluded.

[3] On the difference between 'possession' and 'detention', see article 3.18 Belgian Civil Code (hereinafter abbreviated as 'CC' when referring to articles). Possession is the factual exercise of a right as if one were the holder of this right, either directly or through a third party. In the absence of such intent, there is detention. An obligation to return the right possessed excludes the intent to be its holder. Thus, in a lease contract, for example, the lessee detains the leased good as there is an obligation to return the good to the lessor (see N. CARETTE and R. JANSEN, *Handboek goederenrecht*, Antwerp, Intersentia, 2022, p. 215, no. 362 and p. 216, no. 365). The same holds true for a PaaS contract. The customer has no *animus domini* (see B. KEIRSBILCK et al., "Consumentenbescherming bij servitisation en product-dienstsystemen (PDS)", *TPR* 2019, (817) p. 856, no. 42).

least not consciously – acquiring any property rights[4]. This contrasts sharply with a sales contract, which aims to transfer fully the right of ownership of the product being sold.

PaaS contracts sit at the intersection of multiple branches of law, particularly contract law and property law.[5] The law of contracts mainly[6] governs the internal relationship between the service provider and the customer. It is characterized by an 'open' set of rules based on principles such as freedom of contract[7].[8] Based on that freedom, contracting parties have great freedom in setting up legal constructs to impede any transfer of property rights. The parties in a PaaS contract can take up any – what could be called – 'property clause' that stipulates that the service provider is the undisputed and sole owner of the product offered as a service, inherently entitled to revindicate the product and reclaim its factual detention in the circumstances elucidated by the contract. For instance, the service provider may revindicate the product at the end of the contractual relationship, such as when the lapse of an extinctive term extinguishes the relationship. Another example is that the contracting parties can clarify that the customer's failure to pay (i.e., failure to perform the obligations taken up by the customer[9]) is a sufficiently serious breach of contract that warrants its extrajudicial extinction and obligates the customer to return the product to the service provider (articles 5.90(3) and 5.92 CC). Between the contracting parties themselves such a property clause clarifies ownership rights and dispels any potential ambiguity about who holds the right of ownership (though the contract may still include an option to acquire ownership, such as a purchase option available at the end of the contractual relationship). Moreover, such a property clause ensures that customers cannot claim to be acting in good faith if they attempt to dispose of the product beyond the usage rights granted by the contract or attempt to rely on the probative function of possession. Acceptance of the contractual terms and conditions entails subjective knowledge of the property status of the product offered as a service (see articles 1.9 and 3.22 CC).[10]

However, when exercising their freedom of contract, the contracting parties are to consider the constraints imposed by property law, which operates more restrictively. Although property law

[4] The property rights are the right of ownership, the right of co-ownership, the property rights of use, and the property rights in security (article 3(2) CC).

[5] PaaS contracts are situated at the intersection of three or even four branches of law. In addition to contract law and property law, there is also insolvency law, which is intended to organize and settle how creditors can claim performance of their debts and is guided by principles such as *paritas creditorum* (equality among creditors). Financial law could also be relevant. In a PaaS contract the service provider is not necessarily the owner of the products offered as a service. For financial and other reasons, the owner of the product can be a different person (e.g., a juridical person such as a company).

[6] Contracts also have third-party effects (see article 5.103 CC).

[7] The 'freedom of contract' has several facets. Everyone decides freely whether or not to contract (more precisely this is the freedom *from* contract). Everyone freely chooses the other contracting party. The contracting parties are free to determine the content of their contractual relationship. The contracting parties can, by mutual agreement, modify or terminate their contractual relationship. On freedom of contract and party autonomy see extensively A. APERS, *Wilsautonomie bij de kwalificatie van goederen,* Antwerp, Intersentia, 2017, 663 p.; T. HICK, *A European structure for 'no-contract law' in the 21st century*, Leuven, KU Leuven, 52-58, no. 46-54; V. SAGAERT, "Wilsautonomie in het Belgische goederenrecht, *TPR* 2019, p. 337-414.

[8] Regarding the general interplay between the circular economy and contract law, see D. GRUYAERT, "Contractual Liability, Exoneration and Redress in the B2B Contractual Chain", in E. TERRYN et al. (eds.), *Servitization and circular economy: Economic and legal challenges,* Antwerp, Intersentia, 2023, p. 109-134; H. SLACHMUYLDERS, "Movable servitization. Contractual liability in the B2C Relationship" in in E. TERRYN et al. (eds.), *Servitization and circular economy: Economic and legal challenges,* Antwerp, Intersentia, 2023, p. 135-166.

[9] For an overview of potential obligations for the customer in a PaaS contract, see the research report on model clauses for PaaS contracts.

[10] Even if the customer could claim a lack of actual knowledge regarding the property status of the product provided as a service, it is likely that there was at least a reasonable opportunity to acquire such knowledge. Good faith depends on the knowledge one actually possesses or could have reasonably obtained.

is generally suppletive law (article 3.1 CC), from which deviation is possible, some provisions are mandatory law. Examples are the provisions containing the unity principle (*eenheidsbeginsel/principe d'unité*) – found in article 3.8, §2(2) CC, the *numerus clausus* of property law[11] – found in article 3.3 CC, and all definitions. Contracting parties cannot deviate from those rules.[12]

In the light of PaaS contracts, the unity principle merits particular attention. According to that principle, property rights cannot be established on inherent components of a good, but can only have an entire good as an object (more on this matter to follow). This fundamental property law principle is not only meant to protect those with property rights themselves but also to safeguard the value of goods.[13] Another goal is to protect the rights and the legitimate expectations of third parties.[14] Several core principles of property law protect the legal certainty of third parties by allowing them 'to trust what they see'. Both the preservation of the value of goods and the protection of third parties are traditionally seen as *raisons d'être* of the unity principle and the related property law concept of accession. The unity principle implies that property rights are in principle vested on what is legally considered as a unity.[15] Third parties may legitimately expect that the owner of such a unity is the owner of all its inherent components.[16]

In cases where the PaaS product might be perceived as an inherent component of a unity in the customer's possession, the 'internal' contractual terms, including the property clause (mentioned earlier), safeguarding the service provider's ownership, may intersect with 'external' protection offered to third parties under property law. This raises the question of how parties in a PaaS contract can structure their agreement to protect their (property) rights without conflicting with mandatory property law principles and third-party protection. To what

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[11] Belgian property law is constrained by *numerus clausus*, meaning that contracting parties cannot establish property rights outside the legal framework and out of thin air See extensively on the '*numerus clausus'*-principle: T.H.D. STRUYCKEN, *De numerus clausus in het goederenrecht*, Deventer, Kluwer, 2007, 870 p.; B. AKKERMANS, *The Principle of Numerus Clausus in European Property Law*, Antwerp, Intersentia, 2008, 657 p.

[12] Explanatory memorandum to Book 3 'goods', *Parliamentary Documents* Chamber of Representatives 2019, no. 55-0173/001, p. 11-13 (which is the same text as no. 54-3348/001 (2018-19) (hereinafter 'Memorandum Book 3'); V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Kluwer, 2021, 51-54, no. 51-53. See in the same vein V. SAGAERT and R. JANSEN, ''Goederenrecht: de gestage groei naar een conventioneel vermogensrecht'', *RW* 2011-12, p. 68-73; V. SAGAERT, "Wilsautonomie in het Belgische goederenrecht, *TPR* 2019, p. 337-414; V. SAGAERT, ''Het goederenrecht als open systeem van verbintenissen? Poging tot een nieuwe kwalificatie van de vermogensrechten'', *TPR* 2005, p. 983-1086.

[13] Value preservation is one of the traditional justifications for the existence of the unity principle in property law. See V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Kluwer, 2021, p. 176-177, no. 174. See also A. APERS, *Wilsautonomie bij de kwalificatie van goederen*, Antwerp, Intersentia, 2017, no. 168; S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, p. 28-32, nos. 19-22; K. SWINNEN, *Accessoriteit in het vermogensrecht*, Antwerp, Intersentia, 2014, p. 408-414, no. 395—402; T.H.D. STRUYCKEN, *Numerus clausus in het goederenrecht*, Deventer, Kluwer, 2007, p. 792.

[14] V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, 2021, Malines, Kluwer, 176-177, no. 174. See also A. APERS, *De invloed van de wil van partijen op de kwalificatie van goederen*, Antwerp, Intersentia, 2017, no. 168; S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, 32, no. 23; K. SWINNEN, *Accessoriteit in het vermogensrecht*, Antwerp, Intersentia, 2014, 414-415, nos. 403-404; B. VERHEYE*, Onroerende registerpubliciteit*, Brugge, die Keure, 2021, 31-32, no. 26.

[15] See among others M.E. STORME, *Zekerheden- en insolventierecht,* Ghent-Mariakerke, 2024, p. 30-31.

[16] In the same vein, the rules on first possession of a movable good protects the person who possesses a good and who factually acts as the holder of a right to the good (article 3.18(2) CC) (see extensively on first possession (*verkrijgende verjaring/prescription acquisitive*): J. VAN DE VOORDE, "Bezit en verkrijgende verjaring", in V. SAGAERT et al. (eds.), *Het nieuwe goederenrecht,* Antwerp, Intersentia, 2021 ,p. 163-202). The possessor is rebuttably presumed to be the holder of that property right (article 3.23 CC). Again, third parties may legitimately believe that the person whom they see factually exercising a right is in fact the holder of that right. This serves as another example of property law functioning to protect third parties.

extent can contracting parties make it clear to third parties that they do not intend to create a unity under the customer's ownership in the context of the PaaS contract? The most fundamental question in this regard is whether the contracting parties can contractually exclude the 'creation of components' and 'incorporation' (more on these concepts to follow) of the product into another good by operation of law, which leads to statutory 'accession', so that the owner of the unity good automatically becomes the owner of all the incorporated inherent components. If this accession cannot be avoided, the service provider is at risk of losing ownership of the product offered as a service under the PaaS contract in the eyes of third parties, even though this right is deemed to be protected under the property clause in the contract concluded with the customer.

Examples of situations where the product offered as a service might be perceived as an inherent component of a unity in the customer's possession include cases where the product materially or functionally enhances an immovable good owned by the customer. This could involve a lighting system (light as a service, comprising light fixtures, wiring, control units, etc.), a heating or cooling system (heating/cooling-as-a-service, consisting of thermostats, ductwork, boilers, filters, radiators, etc.) [17], an energy supply system (energy as a service, including photovoltaic panels, inverters, wiring, charge controllers, batteries, mounting infrastructure, etc.) [18], or a water management system (water as a service, including sensors, pumps, pipes, filtration units, flow regulators, etc.).[19]

The classification of a product as an inherent component depends on the specific circumstances of the PaaS model, including the materials used. Within a given PaaS model, the choice of materials can significantly affect the application of property law. For example, in an energy-as-a-service model where the service provider generates solar power for the customer, the provider might choose between using photovoltaic panels or photovoltaic roof tiles. Both options convert sunlight into electricity through semiconductor materials and consist of multiple solar cells that generate direct current when exposed to sunlight. However, they differ in their level of integration into the customer's good (here, for example, a private dwelling). Photovoltaic panels are standalone units mounted on hardware that sits on top of roofs, while photovoltaic roof tiles are integrated roofing materials designed to serve as both a roof covering and a solar energy generator, effectively replacing standard roofing tiles. Essentially, the roof tiles function as the roof itself, whereas the photovoltaic panels are installed on top of roofs. Thus, there is a significant difference in the autonomy of both materials and their ability to be removed without impacting the customer's good. This solar power example will be used throughout the research report to illustrate the theoretical framework.

1.2.2 Potential impediment to adoption of PaaS & (registered) retention of title clauses as solution?

The risk of losing ownership of the product offered as a service could entail that businesses considering the adoption of a PaaS business model become hesitant to do so. As soon as there

[17] See Equans as an example of a PaaS concerning this product (heating/cooling as a service) (https://www.equans.be/nl/coproprietes/heat-service).
[18] See C-energy as an example of a PaaS concerning this product (energy as a service) (https://c-energy.be/en/energy-as-a-service-0).
[19] See WaaS as an example of a PaaS concerning this product (water as a service) (https://water-as-a-service.be/en/).

is a risk that the product becomes an inherent component of the customer's good leading to its incorporation in that good, the legal hassle of dealing with third parties to secure the right of ownership might dissuade those businesses. This raises the question of how service providers can prevent their products from being perceived as inherent components of the customer's good or avoid a situation where such a classification would result in incorporation and accession by operation of law.

Given the fundamental characteristic of PaaS contracts that the service provider wishes to be able to revindicate the product offered as a service and regain its factual detention, if necessary, the products offered as a service are likely to be designed for easy removal. Businesses would prioritize materials that can be readily disassembled, along with assembly and installation methods that facilitate straightforward separation and reassembly. Thus, it becomes less likely that the products will be incorporated in a way that materially binds them to the customer's good, where removal would risk damaging either the product or the customer's good. Such a physical connection would make the product an inherent component of the customer's good. However – as will be explained in more detail below – avoiding such a physical connection does not suffice to avoid the classification as inherent component. There is also a functional criterion for determining whether a good is an inherent component. A good can be an inherent component if its removal, while non-destructive, renders the other good non-functional (i.e., removes its usefulness or leaves it incomplete). Thus, even for products that are designed in a modular fashion, the question remains how incorporation and 'creation of components' could be avoided. Still, increased modularity of goods in practice can go a long way in avoiding legal discussions. For this reason, this research report also aims to provide some practical guidelines regarding the meaning of 'sufficient modularity' – derived from case law – to PaaS service providers (see below).

When it comes to installing the product offered as a service in an immovable good of the customer – which is the main focus of this research report – statute seemingly offers a way to avoid incorporation. The Belgian Pledge Act stipulates that if goods *sold* under a retention of title clause become immovable by incorporation, the retention of title survives the incorporation as long as it has been registered in the pledge register. A registered retention of title clause creates a separate property law status of the incorporated good. Is such a retention of title clause fit for the purpose of a PaaS contract? That is one of the main questions of this research report.

The reason this question is open to debate is that retention of title clauses are traditionally applied in 'translative' contracts, which are contracts intended to transfer ownership, like a sales contract. In such contracts, the retained title functions as a security right. Until the recipient of the good has paid in full (i.e., fulfilled all obligations that constitute the counter-prestation for the transfer of ownership, typically just the payment of the purchase price), the person providing the good retains ownership. This retention grants the right to revindicate the good, as revindication is an inherent aspect of the right of ownership. Essentially, the good acts as collateral to secure payment; either payment is made, or the good is returned, ensuring that the good's value is preserved in the provider's patrimony. However, this retained ownership is not 'full' in the sense that it is conditional. If payment is completed, the ownership transfers immediately. This differs from a PaaS contract, where no simple payment done by the customer

could ever lead to a transfer of ownership.[20] Does that difference make it impossible to rely on a retention of title clause in PaaS contracts? If not impossible in principle, is the use of the pledge register to secure the contractual protection of ownership rights not an improper means to bypass statutory incorporation and accession?

1.3 Scope: immovable goods

The focus of this research report is mainly those PaaS contracts where the product is used to enhance materially or functionally a customer's immovable property, e.g. by installing lighting systems or other technologies in a building. Movable goods are dealt with less extensively. However, as fundamental notions such as 'accession' and 'creation of components' are relevant to both categories of goods, the content of this research report is relevant to both immovable and movable goods.

[20] This statement excludes the possibility that the customer makes use of a purchase option in the PaaS contract.

2 Fundamental property law concepts

2.1 Introductory remark

This section contains definitions and descriptions of property law concepts (and some adjacent contract law concepts) that are essential to the subject matter of this research report (i.e., the question to what extent it is possible to prevent creating (the perception of) a 'unity' in the hands of the customer under a PaaS contract). These concepts are outlined here to ensure a good understanding of the remainder of the report. The definitions and descriptions are based on classical doctrinal literature and are given – mostly – at face value. The outlined concepts are analyzed in more detail below, where some of the definitions and descriptions are questioned.

2.2 Inherent components & autonomous goods

A first set of concepts is 'inherent component' and 'autonomous goods', which are key to understanding other notions (e.g., the category of goods that are immovable by incorporation, the category of goods that are subject to (immovable) accession, the creation of components and the unity principle). These basic concepts of property law are also explicitly mentioned or implicitly referred to throughout the recently reformed Civil Code. However, the notion of 'inherent components' is omnipresent in property law, the introduction of this notion remained somewhat unnoticed or at least did not receive attention it deserves in legal doctrine.[21] In what follows, we focus on the interpretation and applications of the notion of 'inherent components' in Belgian property law, as criterion for the application of the unity principle.

Following its legal definition, an inherent component of a good is an essential element of that good that cannot be separated from it without affecting the material or functional substance of that good (see article 3.8, §2 CC). This concept is significant for two intertwined reasons.

- First, the 'unity principle' (more on this principle to follow) holds that, notwithstanding any clause to the contrary and unless a statute provides otherwise, a property right to an inherent component cannot be established separately.[22] A property right to a good

[21] See N. BERNARD, P.-Y. ERNEUX, B. PIRLET and M. VAN MOLLE, "Nouveau droit des biens : jusqu'où iras-tu, composante inhérente ?", *JT* 2023, (465) 465.

[22] See in Belgian legal doctrine after the property law reform: J. BAECK, "Algemene regels inzake het voorwerp van zakelijke rechten", in V. SAGAERT et al. (eds)., *Het nieuwe goederenrecht*, Antwerp, Intersentia, 2021, (29) p. 39, no. 15; S. BOUFFLETTE, *Les biens dans le code civil. Analyse synthétique et descriptive du livre 3,* Limal, Anthemis, 2023, p. 13-14, no. 11-12; S. BOUFFLETTE AND A. SALVE, "Les principes généraux du droit des biens (Titre Ier du nouveau livre 3 du Code civil) et le droit transitoire de la réforme du 4 février 2020" in N. BERNARD and V. DEFRAITEUR (eds.), *Le droit des biens au jour de l'entrée en*

extends to its inherent components by operation of law, and any act of disposition with regard to the good extends to its inherent components by operation of law (article 3.8, §2(2) CC).[23] The Committee of experts tasked with drafting Book 3 of the new Civil Code (hereinafter 'Committee') stresses that property rights can only relate to 'autonomous goods' and not to the inherent components of goods.[24]

- Second, the classification of a good as an inherent component of another good has consequences for its status as 'movable' or 'immovable (by incorporation)' and for 'accession' (more on these concepts to follow). Both 'incorporation' and 'accession' hinge on the same criterion of the 'creation of components' (*bestanddeelvorming/création ou constitution de composantes*).[25] Both article 3.47 CC and article 3.64 CC refer to article 3.8 CC on the unity principle. Inherent components have thus become the key factor for the incorporation criterion. The coexistence of similar but not fully aligned criteria for immovables by incorporation and immovable accession would create a complex and confusing situation, where movable property may be subject to immovable accession, or conversely, incorporated immovable property may not be subject to immovable accession. A single, clear criterion improves transparency and legal certainty.[26] As a result, incorporation always leads to accession.

The antonym of inherent component is an 'autonomous good', which has sufficient independence to be the subject of a property right.[27] The Committee asserts that the assessment of the autonomy of a good depends on social conventions (*verkeersopvattingen/la conception socialement admise*).[28 - 29] Thus, social conventions are important for the

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vigueur de la réforme, Brussels, Larcier, 2021, (7) p. 24-26, nos. 15-16; N. CARETTE AND R. JANSEN, *Handboek Goederenrecht,* Antwerp, Intersentia, 2022, p. 65, no. 75; P. LECOCQ AND R. POPA, "Dispositions générales", in V. SAGAERT et al. (eds.), *Le nouveau droit des biens*, Brussels, Larcier, 2020, (15) p. 30-31, no. 22; P. LECOCQ AND R. POPA, "Dispositions générales", in N. Bernard (ed.), *Le droit des biens réformé* , Brussels, Larcier, 2020, 40-42, no. 22-23; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht,* 2021, Malines, Kluwer, p. 176-177, no. 174; V. SAGAERT, "De hervorming van het goederenrecht", *TPR* 2020, (389) p. 434-435, no. 34; A. WYLLEMAN AND J. BAECK, *Goederenrecht*, Bruges, die Keure, 2021, p. 198-199; B. TILLEMAN, A.L. VERBEKE AND V. SAGAERT, *Vermogensrecht in kort bestek*, Antwerp, Intersentia, 2020, p. 15, no. 27.

[23] N. BERNARD AND V. DEFRAITEUR, *Le droit des biens après la réforme de 2020,* Limal, Anthemis, 2022, 45, no. 50; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht,* Malines, Kluwer, 2021, p. 176, no. 174.

[24] Memorandum Book 3, p. 25-26.

[25] This is a conscious choice of Committee, see Memorandum Book 3, p. 123 and 135-136.

[26] Before the property law reform, especially with the broadening of the incorporation criterion, there was uncertainty about the alignment of the criterion for immovable incorporation and immovable accession. See among others: S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsing,* Antwerp, Intersentia, 2015, nos. 91-94. In Dutch case law and in the works of some legal scholars, there is ongoing debate about whether or not different criteria exist for immovable incorporation (article 3:3 Dutch Civil Code), inherent components (article 3:4 Dutch Civil Code) and immovable accession (article 5:20 Dutch Civil Code). See for an overview of this discussion: H.W. HEYMAN and S.E. BARTELS, *Vastgoedtransacties: Koop*, Deventer, Kluwer, 2019, p. 42–43 and 54 and following.

[27] Memorandum Book 3, p. 25-26.

[28] Memorandum Book 3, p. 26. See for an older reference to social conventions in this context E. DIRIX and R. DE CORTE, *Beginselen van Belgisch privaatrecht (deel XII) - Zekerheidsrechten*, Antwerp, Kluwer Rechtwetenschapen, 1999, p. 391, no. 569. The concept of 'social conventions' is inspired by the Dutch concept '*verkeersopvattingen'.* The Dutch Supreme Court (*Hoge Raad*) has given some substance to the concept of verkeersopvattingen, see HR 15 November 1991, Depex/curatoren Bergel, ECLI:NL:HR:1991:AD1791. See extensively: P. MEMELINK, *De verkeersopvatting*, The Hague, Boom juridische uitgevers, 2009, 427 p.; K.J.O. JANSEN, "Verkeersopvattingen en private regelgeving. Over maatschappelijke opvattingen als bron van ongeschreven privaatrecht, *NTBR* 2020, p. 26-41; A.C. VAN SCHAICK, "Verkeersopvattingen in het goederenrecht" in S.E. BARTELS and J.M. MILO (eds.), *Open normen in het goederenrecht*, BJU, The Hague, 2000, p. 79 and following.

[29] TIMMERMANS gives the following interpretation to the concept of 'autonomy' based on social conventions. The author writes that 'autonomy' refers to 'sufficient individualizability', which according to social conventions can be understood as 'a part that can be distinguished as a specific unit within the larger whole', see R. TIMMERMANS, "Circulair bouwen, cascohuur, servitisatie, Madaster en afstand van bestanddeelvorming", *T.Huur* 2021, (106) p. 123; R. TIMMERMANS, *Erfpacht. Oorsprong, ontwikkeling en modern instrumenteel gebruik*, Malines, Wolters Kluwer, 2023, p. 262, no. 370.

interpretation of the unity principle, specifically in determining what can – *a contrario* to the qualification as autonomous good – be considered to be an inherent component of another good.[30] The Committee remarks that in any case the good that is part of a larger (or principal) good and that cannot be separated from it without having to demolish something (implying that deterioration can affect both the smaller and the larger good[31]), cannot be regarded as autonomous and constitutes only a component[32] of the larger good.[33] For example, both photovoltaic roof tiles and panels could be material inherent components if the way they are integrated in and/or on the roof of the customer entails that their removal damages other parts of the roof structure; this is less likely for the panels as they are normally mounted on a framework laying on top of the roof.

The explanatory memorandum first refers to social conventions followed by the phrase 'in any case' (*in elk geval/en tout* cas). This leaves one to wonder whether the Committee intended to give an example of a concrete social convention ('in any case, a current social convention is that goods connected in such a way that damage during removal is inevitable are inherent components') or establish a rule within the explanatory memorandum that takes precedence over social conventions ('it will always be the case that such goods are inherent components and no social convention can change that'). The relevant provision has been inspired by Dutch law (even to the extent that the explanatory memorandum to the draft Dutch Civil Code similarly contains '*in ieder geval*').[34] Article 3:4 of the Dutch Civil Code on the creation of components mentions social conventions in its first paragraph and stipulates in its second paragraph that a good that is connected to a principal good in such a way that significant damage is inevitable upon removal is an inherent component. However, Dutch legal scholars disagree on the relation between the first paragraph of article 3:4 (social conventions) and the second paragraph (material incorporation). The majority view holds that the social conventions and the material incorporation criterion are alternative and independent criteria for inherent components, which means that one can conclude that something is an inherent component of a good if the material incorporation criterion of the second paragraph is met, regardless of whether according to the social conventions, the good would remain autonomous.[35] According to this view the second paragraph contains a statutory rule that renders social conventions moot as touchstone.[36] However, an opposite view holds that the social conventions are decisive and the material incorporation criterion is subordinate.[37] This implies that even if the material incorporation criterion of article 3:4(2) of the Dutch Civil Code is satisfied, a good may still not be considered an inherent component according to social conventions. In its Zalco II judgment, the Dutch Supreme Court (*Hoge Raad*) ruled on the relation between the material

[30] P. MEMELINK, *De verkeersopvatting,* The Hague, Boom Juridische uitgever, 2009, p. 150-152.

[31] J. BAECK, "Algemene regels inzake het voorwerp van zakelijke rechten", in V. SAGAERT, et al. (eds.), *Het nieuwe goederenrecht*, Antwerp, Intersentia, 2021, p. (29) 38, no. 15; V. SAGAERT, "De hervorming van het goederenrecht", *TPR* 2020, p. (389) 435, no. 54. See also V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 189, no. 9 ("(…) breaking or damaging the good or the inherent component itself (…) (own translation)").

[32] Notably not *inherent* component but the omission of that adjective by the Committee seems unintentional.

[33] Memorandum Book 3, p. 26.

[34] E.M. MEIJERS, *Ontwerp voor een nieuw Burgerlijk Wetboek - Toelichting (eerste gedeelte) (boek 1-4)*, The Hague, Staatsdrukkerij en uigeverijbedrijf, 1954, p. 163

[35] Proponents of this view are among others E.F. H. HEYMAN and S.E. BARTELS, *Vastgoedtransacties. Koop,* The Hague, BJU, 2021, p. 36, no. 19; J.E. WICHERS, *Natrekking, vermenging en zaaksvorming*, Deventer, Kluwer, 2002, p. 77.

[36] H.D. PLOEGER, *Horizontale splitsing van eigendom*, Deventer, Kluwer, 1997, p. 29; E.F. VERHEUL, "Eigendomsvoorbehoud, bestanddeelvorming en natrekking", *WPNR* 2015, (237) p. 237

[37] Proponents of this view are among others K. HOOFS, *Doorbreking van de natrekking,* diss. Maastricht, Nijmegen, 2013, p. 83; P.J. VAN DER PLANK, *Natrekking door onroerende zaken,* Deventer, Kluwer, 2016, 126-127; P.J. VAN DER PLANK, "De verkeersopvatting als leidend criterium voor bestanddeelvorming in de zin van art. 3:4 BW", WPNR 2015, p. 1036-1037; E.C.M. WOLFERT, "Bestanddeel of zaak? Over het onderscheid en de samenhang tussen de artikelen 3:4 en 5:20 NBW II (slot), WPNR 2003, afl. 6525, (279) p. 283-284 and 285.

incorporation criterion and the social conventions for inherent components.[38] The Supreme Court endorses the majority view and confirms that paragraphs 1 and 2 of article 3:4 Dutch Civil Code each contain an independent criterion for inherent components and that the social conventions are, thus, irrelevant for the interpretation of the material incorporation criterion. If a thing becomes an inherent component of a good based on article 3:4(2) Dutch Civil Code, then the classification as an inherent component cannot be rejected because of differing social conventions. The fact that the Belgian Committee has not elevated the reference to the social conventions to the level of statute makes it unclear whether it has wanted to follow the Dutch example to the fullest extent or has intentionally left some room for evolutions in society and jurisprudence. In the latter case, the Committee believes it is possible for social conventions to evolve towards a different understanding of 'inherent component' in this regard. Conversely, if the Dutch example is followed this entails in essence that the material criterion (more on this to follow) has nothing to do with social conventions despite the introductory sentence in the explanatory memorandum that the inherent nature of components is assessed on the basis of social conventions). The relevance of social conventions is then solely found in the functional criterion (more on this to follow).

The notion of an inherent component is broader, however, as a good can still be an inherent component if its removal, while non-destructive, renders the other good non-functional (i.e., removes its usefulness).[39] SAGAERT – who was part of the Committee – provides several other examples thereof (specifically immovable inherent components): the non-destructive removal of a gas pump, which renders the gas station useless, and the non-destructive removal of wiring, plumbing, doors, or staircases which renders a building unfit for its normal use.[40] The reformed Civil Code does not exist in a legal vacuum. It is a continuation of the former Civil Code and as such it – in part – codifies and contains older doctrines.[41] Hence, to understand the meaning of the reformed Civil Code and to be able to apply it practically, it is useful to take a look at the older doctrines that have given shape to the reformed law. Even prior to the property law reform, case law and some legal scholars had already considered a so-called '(in)completeness test' to determine the immovability of components of buildings.[42] According to this criterion, a good is considered an inherent component of a principal good if, according to social conventions, the principal good cannot fulfill its economic or social purpose without the other good.[43] Additionally, the internal alignment (*afgestemdheid/alignement*) between goods is

[38] HR 13 November 2020, ECLI:NL:HR:2020:1785; J.W.H. LEMMEN, "Over artikel 3:4 lid 2 NBW als zelfstandige grond voor bestanddeelvorming. Een bespreking en analyse naar aanleiding van Zalco II", *NTH* 2021, p. (55) 58-59.

[39] V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 178, no. 175.

[40] V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 178, no. 175.

[41] In this regard see, Memorandum Book 3, p. 118, where the Committee stresses that it does not wish to upset evolutions in the case law.

[42] Liège 17 March 1983, *Rec.gén.not*. 1984, n° 23095, (334) p. 335; R. DERINE, F. VAN NESTE and H. VANDENBERGHE, *Zakenrecht* in *Beginselen van Belgisch Privaatrecht*, IA, Antwerp, Standaard, 1974, p. 85, no. 43; J. HANSENNE, *Les Biens. Précis*, Luik, Edition Collection Scientifique de la Faculté de Droit de Liège, 1996, p. 65-66, no. 56; F. LAURENT, *Principes de droit civil français,* V, Brussels, Bruylant, 1871, p. 508, no. 409.

[43] A good illustration of how social conventions feed into this criterion can be found in the following considerations in Ghent 12 March 1991, *T.Vred.* 1991 (212) 213: "Considering that a fully furnished kitchen is no longer a luxury item today, but a good intended for ordinary, daily use, thus making the house habitable by modern standards, a modern home can no longer be considered finished and normally habitable if it is not equipped with a fully furnished kitchen. Therefore, kitchen cabinets, refrigerators, dishwashers, cooktops, and ovens can no longer be considered luxury items." (translation of "Overwegende dat een ingerichte keuken heden ten dage geen luxegoed meer is, maar een goed bestemd voor het gewoon, dagelijks gebruik dus om het huis – naar moderne maatstaven – bewoonbaar te maken, dat een moderne woning dan ook niet meer als afgewerkt en normaal bewoonbaar kan worden aangezien wanneer deze niet is uitgerust met een ingerichte keuken, en dat dan ook keukenkasten, frigo's, vaatwasmachines, kookplaten en ovens, niet meer als luxegoederen kunnen worden aangezien.") and Ghent 14 December 1994, *FJF* p. (538) 54: "It is therefore necessary to examine in concrete terms whether the movable goods associated with the building complete the building or (merely) contribute to its usefulness. In doing so, consideration must be

taken into account during the assessment of the functional criterion for inherent components.[44] Goods that are specifically adapted to a building and form a unit with it are inherent components of the building.[45] Given the expectation that goods offered as a service in a PaaS context are designed in a modular fashion to facilitate their removal – and thus less tailored to the needs of a particular building – this element of assessment is less relevant.

To summarize, from the foregoing follows that the classification as inherent component can be alternatively based on a material (i.e., impossibility to remove without deterioration) and a functional criterion (i.e., necessity for usefulness). Conversely, goods that are (1) easy to remove from another good without destruction and (2) have no bearing on the functionality of the other good remain autonomous (e.g., decorative elements of a building such as paintings) – at least as long as this aligns with social conventions. For the record, the adverb 'alternatively' is stressed here: the wording of article 3.47(3) CC shows that inherent components of buildings need not have a material connection with the building.[46] Consequently, items such as keys, remote controls, or a freestanding gas stove qualify as functionally necessary inherent components of a building, even though they may not have a substantial physical attachment to the immovable good.[47]

As regards the material criterion, the *essentiality* of the component mentioned in article 3.8 CC seems to be of less importance as – based on the explanatory memorandum – a mere material change in the composition of the goods during removal (i.e., 'damage') suffices to label the component as inherent.[48] Thus, in contrast to what the statutory text of article 3.8 CC suggests, a component that is materially inherent need not be an essential element; it suffices that it

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given to contemporary trends, and it is to be investigated what – according to current standards – is required to make a building 'habitable.' In other words, it is to be determined whether the building could be considered finished if the movable goods associated with it were not installed." (translation of "Het komt er derhalve op aan in concreto te onderzoeken of de, met het gebouw verenigde, roerende goederen het gebouw voltooien of (slechts) bijdragen tot het nut ervan. Daarbij moet rekening worden gehouden met de tijdsgeest en moet onderzocht worden wat – volgens de huidige normen – vereist is om een gebouw 'bewoonbaar' te maken, m.a.w. er moet onderzocht worden of het gebouw als afgewerkt zou kunnen aangezien worden wanneer het (met het gebouw verenigde) roerend goed niet zou aangebracht zijn."). See also – in the context of immovability by purpose – Antwerp 21 December 1987, *Turnhouts Rechtsleven* 1988, (71) 72: "(…) however, in today's society, they should be considered strictly necessary; that the gas radiators are thus immovable by purpose" (translation of "(…) doch in de huidige samenleving als strikt noodzakelijk beschouwd dienen te worden; dat de gasradiatoren aldus onroerend zijn door bestemming").

[44] Regarding this criterion, see K. DE SCHEPPER, "Beweegbare onroerende eigendom: over de juritectuur van drijvende woningen", *TPR* 2022, (283) p. 330-332, no. 41. This criterion is derived from Dutch law, in which the internal alignment between goods is a part of the social conventions criterion under article 3:4(1) Dutch Civil Code. See HR 28 February 2003, *NJ* 2003, 272; J. HIJMA, "Farmaceutische apparatuur bestanddeel van fabriek?", *AA* 1992, (284) p. 286; H.J. SNIJDERS and E.B. RANK-BERENSCHOT, *Goederenrecht*, 2022, Deventer, Kluwer, p. 29, no. 37.

[45] The wording of article 3.47(3) CC, shows that inherent components of buildings do not necessarily need to be materially incorporated.[45] Consequently, items such as keys, remote controls, a freestanding gas stove, a heater, or other heating elements—if no central heating is present—qualify as functionally necessary inherent components of a building, regardless of the fact that they do not show a substantive physical connection to the immovable property.

[46] Mind the last phrase: "Inherent components of these buildings and plantings are also immovable by incorporation, regardless of whether they are actually incorporated" (own underlining). As will be explained later on, 'incorporated' means 'materially connected' in this context.

[47] N. CARETTE and R. JANSEN, *Handboek Goederenrecht,* Antwerp, Intersentia, 2022, p. 304, no. 534.

[48] The material incorporation criterion of article 3:4,(2) Dutch Civil Code is stricter: only if the damage resulting from the removal of the component is sufficiently significant, the component is inherent (HR 13 November 2020, *JOR* 2021/53, with annotation by V. TWEEHUYSEN, (547) p. 555). However, the Dutch Supreme Court has ruled that if separation of the component is technically possible without significant material damage, but the separation requires disproportionate effort or high costs in relation to the value of the items, this may also be considered as sufficiently damaging (HR 13 November 2020 (*Zalco II)*, ECLI:NL:HR:2020:1785; W.H. LEMMEN, "Over artikel 3:4 lid 2 NBW als zelfstandige grond voor bestanddeelvorming. Een bespreking en analyse naar aanleiding van *Zalco II", NTH* 2021, (55) p. 59).

cannot be removed without deterioration.[49] Conversely, the essentiality seems determinative for the functional criterion, as it entails that the united good cannot function without its inherent component. Thus, a functionally inherent component is necessarily an essential element; without this element the united good is no longer useful.

This raises the question raises what weight should be given to the explanatory memorandum if it stands somewhat at odds with a statutory article? Only the 'text' of a statute that is duly published binds Belgian citizens (article 190 Constitution). The parliamentary preparatory documents drafted during the inception of the statute are not on par with the statutory text itself as the legislature only officially approves the latter. Consequently, the basis of all interpretation and application of statutes by courts is grammatical, focused primarily on the statutory text. The language used in that text serves as the starting point for interpretation. That language must ordinarily be regarded as conclusive when it is clear and unambiguous on its face. However, the flaws of human language – particularly statutory language given the inherent difficulties with the concept of '*the* legislature' – are well-known.[50] Words are an imperfect method to convey 'intention,' as their reader might assign them a different meaning than intended by their drafter, and the meaning of words can change over time. Moreover, it is impossible to foresee all situations that could fall within the scope of the statute or to account for all possible changing circumstances (in this regard the open character of human language is less of a flaw and more of a feature).[51] Thus, courts may rely on other interpretation methods to find a reasonable application of statutes (e.g., historical interpretation, systematic interpretation, teleological interpretation, etc.).[52] In using those methods, courts can turn to the parliamentary preparatory documents. Those documents can never be imperative, but can act as an inspiration and persuasive source of law.[53] It is also good to keep in mind that the statutory text in and of itself is not 'law', but merely an attempt to describe in words how courts are to resolve disputes systematically and decisively.[54] Actual 'law' is found in those judicial resolutions.[55] All of this to say that, as regards the material criterion, courts will in all likelihood use the new article 3.8 CC in a way that is consistent with case law based on the Old Civil Code of 1804. This is especially true considering that, according to SAGAERT, the Committee wished to include the old

[49] V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 209; V. SAGAERT, "De hervorming van het goederenrecht", *TPR* 2020, (389) p. 435, no. 54; K. DE SCHEPPER, "Beweegbare onroerende eigendom: over de juritectuur van drijvende woningen", *TPR* 2022, (283) p. 327-328, no. 38; V. SAGAERT, "Onroerend door incorporatie: over airco's en tunnelvisies", *RW* 2020, (854) p. 865; N. BERNARD and V. DEFRAITEUR, *Le droit des biens après la réforme de 2020*, Limal, Anthemis, 2020, p. 43, no. 50 *Contra:* J. BAECK, "Algemene regels inzake het voorwerp van zakelijke rechten" in V. SAGAERT et al. (eds)., *Het nieuwe goederenrecht*, Antwerp, Intersentia, 2021, (29) p. 38, no. 15.

[50] The American legal scholar RADIN summarizes the fallible nature of statutory texts well in his 1930 article "Statutory Interpretation" in the Harvard Law Review: "A statute is neither a literary text nor a divine revelation. Its effect is therefore neither an expression laden with innumerable emotional overtones nor a permanent creation of infallible wisdom. It is a statement of a situation, or rather of a group of possible events within a situation, and as such is essentially ambiguous." (p. 868). RADIN also sharply describes how the existence of '*the* legislature' is a myth: "The least reflection makes clear that the law maker, der Gesetzgeber, le législateur, does not exist, and only worse confusion follows when in his place there are substituted the members of the legislature as a body. A legislature certainly has no intention whatever in connection with words which some two or three men drafted, which a considerable number rejected, and in regard to which many of the approving majority might have had, and often demonstrably did have, different ideas and beliefs." (p. 870).

[51] Changing circumstances also impact parliamentary preparatory documents, see opinion advocate general R. DE BOCK 10 November 2023, ECLI:NL:CRVB:2023:2086, no. 15.18.

[52] The Court of Cassation supports the historic interpretation by referring itself to the 'history of statutes' and to parliamentary preparatory documents, see Cass. 7 September 2018, C.17.0711.N, ECLI:BE:CASS:2018:ARR.20180907.5; Cass. 7 October 2019, C.19.0093.N, ECLI:BE:CASS:2019:ARR.20191007.2; Cass. 22 June 2020, S.18.0009.F, ECLI:BE:CASS:2020:ARR.20200622.3F.6.

[53] See extensively J. VRANKEN, *Mr. C. Assers Handleiding tot de beoefening van het Nederlands Burgerlijk Recht. Algemeen deel*, Zwolle, Tjeenk Willink, 1995, nos. 150-154

[54] See also J. VRANKEN, *Mr. C. Assers Handleiding tot de beoefening van het Nederlands Burgerlijk Recht. Algemeen deel*, Zwolle, Tjeenk Willink, 1995, no. 154.

[55] Regarding this topic, see in detail M. KRUITHOF, "Een kritische analyse van het concept causaliteit in het ontwerp van de Commissie tot hervorming van het aansprakelijkheidsrecht", *TPR* 2021, (269) p. 275-276, no. 8.

'objective' criterion in article 3.8 CC. That old objective criterion is simply that the good cannot be removed without deterioration, without any reference to its essentiality.[56]

In a 'circular economy'[57], the functional criterion gains importance. A movement relevant to property law advocates for circular building practices, emphasizing the use of materials that are easy to disassemble and construction methods that facilitate separation and reassembly. This approach enables materials to be recovered and reused without requiring the complete deconstruction of a building.[58] Thus, a key characteristic of circular building is that components of buildings are more easily removed without deterioration. In a sense, buildings become a collection of temporarily connected materials. As a result, for these components to be considered 'inherent components' the functional criterion is decisive.

Given the fundamental characteristic of PaaS contracts that the service provider wishes to be able to revindicate the product offered as a service and regain its factual detention, the products offered as a service are likely to be designed for easy removal. Businesses would prioritize materials that can be readily disassembled, along with assembly and installation methods that facilitate straightforward separation and reassembly. Thus, it becomes less likely that the products will be incorporated in a way that materially binds them to the customer's good, where removal would risk damaging either the product or the customer's good. It is however conceivable that courts – depending on the specific circumstances – might view the examples of PaaS mentioned in the introduction, such as service-based lighting systems, heating or cooling systems, energy supply systems, and water management systems, as inherent components based on the functional criterion. Specifically, all of these systems depend on wiring and plumbing (see the examples given earlier by SAGAERT), and, more broadly, the absence of such systems would leave the customer's home or workplace significantly under-equipped, if not entirely unfit for use. The Belgian Court of Cassation has used the functional criterion of Book 3 of the Civil Code anticipatorily, before its adoption, to consider an air conditioning unit in an apartment building as an immovable good (and that qualification entails necessarily that the unit is regarded as an inherent component of the larger building).[59] With regard to photovoltaic panels, an important example in case law is the ruling by the court of appeal of Liège that, under the old Civil Code, photovoltaic panels on the roof of a building are immovable if they are necessary for the supply of electricity to the building (i.e., in circumstances where the panels are the main or even sole source of energy in the building).[60] That interpretation remains valid under the reformed property law based on the functional criterion. The explanatory memorandum cites photovoltaic panels that are the main source of electricity as an example of an inherent component that, although removable, is necessary for

[56] V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 209, no. 214.
[57] For a definition of the concept 'circular economy', see, for example, article 2(9) Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, *OJ L* 22 June 2020, p. 13-43: "an economic system whereby the value of products, materials and other resources in the economy is maintained for as long as possible, enhancing their efficient use in production and consumption, thereby reducing the environmental impact of their use, minimising waste and the release of hazardous substances at all stages of their life cycle, including through the application of the waste hierarchy".
[58] See extensively B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 107-197.
[59] Cass. 25 February 2019, *RW* 2020, p. 853-856. See N. BERNARD, "La classification des biens. Titre 2 du nouveau livre 3 du Code civil" in N. BERNARD and V. DEFRAITEUR (eds.), *Le droit des biens au jour de l'entrée en vigueur de la réforme*, Brussels, Larcier, 2021, (59) p. 82, no. 41; V. SAGAERT, "Onroerend door incorporatie: over airco's en tunnelvisies", *RW* 2020, p. 854-856.
[60] Liège 11 September 2014, *NJW* 2015, p. 320, annotation by J. DEL CORRAL.

the building's functionality.[61] *A fortiori*, this applies even more strongly to photovoltaic roof tiles, as their removal would not only disrupt the energy supply but would also render the building incapable of withstanding weather conditions.

2.3 Movable & immovable goods

A second pair of concepts is 'movable' and 'immovable' goods. All goods are either movable or immovable.

'Movable' is the residuary category.[62] Everything that is not immovable is movable (article 3.46 CC). As will become clear through the contrast with immovable goods, examples of movable products are couches[63], washing machines[64], bicycles[65] (or more extensively all micro-mobility products), mobile phones[66], etc.

'Immovable' goods are immovable by their nature, by incorporation or by purpose (article 3.47 CC). To start with, immovable by their nature are the land and its inherent volumes, which are determined in three dimensions (article 3.47(1) CC). Basically, land is seen as the only good that is truly immovable by its nature.[67]

Next, there are two ways in which a good can become immovable by incorporation.

- First, immovable by incorporation are all buildings and plantations that are 'incorporated' in goods immovable by their nature, namely land, and are therefore an inherent component thereof (article 3.47(2) CC).[68] An example is a commercial

[61] Memorandum Book 3, p. 118; N. CARETTE and R. JANSEN, *Handboek goederenrecht*, Antwerp, Intersentia, 2022, p. 304, no. 53; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Wolters Kluwer, 2021, p. 178, no. 175

[62] N. CARETTE and R. JANSEN, *Handboek goederenrecht,* Antwerp, Intersentia, 2022, p. 297, no. 524; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Wolters Kluwer, 2021, p. 201, no. 204

[63] See Sofar as an example of a PaaS concerning this product (https://sofar.club/). In some circumstances sofas could be immovable by purpose (e.g., in a bar, couches owned by the owner of the building in which the bar is located could be used as a seating opportunity for patrons and thus be used to exploit the building).

[64] See Bundles as an example of a PaaS concerning this product (https://bundles.nl/en/washing-machine-rental/). In some circumstances washing machines could be immovable by purpose (e.g., in a laundromat, washing machines owned by the owner of the building in which the laundromat is located could serve the exploitation of the building). In other cases, washing machines could also be immovable by incorporation (e.g., if the washing machine is integrated into a built-in cabinet in a building and cannot be removed without deterioration of the built-in cabinet; additionally, because of the open nature of the concept 'social conventions', it is possible that a court might rule that a home is not fit for its normal use without a washing machine (although the existence of laundromats might serve as a counterargument)).

[65] See Swapfiets as an example of a PaaS concerning this product (https://swapfiets.be/). In some circumstances bicycles could be immovable by purpose (e.g., in an indoor bike park, bicycles owned by the owner of the building in which the indoor bike park is located could serve the exploitation of the building).

[66] See Swapphone as an example of a PaaS concerning this product (https://swapphone.be/). In some circumstances mobile phones could be immovable by purpose (e.g., in a virtual reality arcade, mobile phones owned by the owner of the building in which the arcade is located could be used as part of virtual reality headset and thus be used to exploit the building).

[67] A. APERS, "Onderscheid tussen roerende en onroerende goederen" in V. SAGAERT et al. (eds.), *Het nieuwe goederenrecht*, Antwerp, Intersentia, (51) p. 66, no. 40.

[68] See N. CARETTE AND R. JANSEN, *Handboek goederenrecht,* Antwerp, Intersentia, 2022, p. 297, no. 524, , who note correctly that buildings and plantations are not necessarily a 'necessary component' of the land within the meaning of article 3.8, §2(1) CC. However, according to these authors, as building and plantations are incorporated in the land, by incorporation, they become inherent components (article 3.47(2) CC).

warehouse.[69] All construction materials (e.g., masonry, steel beams, insulation, roof panels, etc.) are movable until they are assembled to form the warehouse on the land. The individual movable goods lose their autonomy and become inherent components of an immovable whole. The building is an assembly of construction materials that collectively form a unified whole.[70] These components are materially necessary inherent components of the building, as they cannot be removed without damage (e.g., it is not possible to remove a brick—which was originally movable before becoming part of a building—from a masonry wall without damaging the mortar that holds it in place). It is not relevant that the goods immovable by their nature, on the one hand, and the incorporated buildings and plantations, on the other hand, are owned by different persons. It does not matter whether the connection with the goods immovable by nature was established by their owner or not.[71] That is exactly the risk that can arise during the execution of a PaaS contract.

- Second, inherent components of those incorporated buildings and plantations are also immovable by incorporation, irrespective of whether or not they are incorporated (article 3.47(3) CC). Thus, the inherent components (i.e., functionally essential elements of the buildings/plantations on land or elements thereof that cannot be removed without damage)) of the buildings/plantations follow the status of the latter.

To grasp articles 3.47(2) and 3.47(3) CC fully, it is important to understand the meaning of the terms 'incorporation' and 'incorporated' used in these articles. The explanatory memorandum seems[72] to refer to the material criterion of the concept of 'creation of inherent components' in the new Civil Code when using 'incorporated'.[73] By way of contrast, the explanatory memorandum gives photovoltaic panels as an example of goods that are not 'materially incorporated' because they are easy to remove (i.e., non-destructive removal). However, such panels can be inherent components of a building on the basis of the functional criterion.[74] Thus, they can also be immovable by 'incorporation'. It would not be lost on any rigorous reader that it is confusing[75] that the explanatory memorandum uses the same criterion to brand goods

[69] N. BERNARD, "La classification des biens. Titre 2 du nouveau livre 3 du Code civil " in N. BERNARD and V. DEFRAITEUR (eds.), *Le droit des biens au jour de l'entrée en vigueur de la réforme*, Brussels, Larcier, 2021, (59) p. 81, no. 39 notes that under the Old Civil Code buildings (of which a commercial warehouse is an example) would have been classified as immovable by their nature but can now be seen as immovable by incorporation.

[70] See under French law M.-C. DE LAMBERTYE-AUTRAND and G. GUILHEM, "Art. 517 à 521", *JurisClasseur Civil Code 2020*, no. 72

[71] Cass. 21 March 1872, *Pas.* 1872, I, 183. See *mutatis mutandis* J. KOKELENBERG, V. SAGAERT, T. VAN SINAY and R. JANSEN, "Overzicht van rechtspraak. Zakenrecht (2000-2008)", *TPR* 2009, p. (1113) 1122, no. 1.

[72] The works of SAGAERT suggest a somewhat different approach that is closer to case law under the Old Civil Code. In his main work on property law the author discusses article 3.47(2) CC – before discussing article 3.47(3) CC – and mentions both the material and the functional criterion of the creation of components. The author refers to the old criterion of the Court of Cassation that immovable by incorporation are those goods that are permanently and usually connected to buildings or attached to them (Cass. 15 September 1988, *Arr.Cass.* 1988-89, p. 60) (which is also mentioned in Memorandum Book 3, p. 118-119), see V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 209-211, nos. 213-215. The earlier remark about the primacy of statutory text over parliamentary preparatory documents applies equally to doctrinal literature published after the adoption of acts. Doctrinal literature can only serve as persuasive authority for courts and cannot directly bind them.

[73] Memorandum Book 3, p. 118.

[74] Liège 11 September 2014, *NJW* 2015, p. 320, annotation by J. DEL CORRAL.

[75] An example of the consequences of possible confusion can be found in R. TIMMERMANS, *Erfpacht. Oorsprong, ontwikkeling en modern instrumenteel gebruik*, Malines, Woltes Kluwer, 2023, p. 259, no. 366. On the topic of the creation of components in the circular economy, the author writes that circular business models like PSS, where products are ultimately meant to return to the service provider, will lead to products being designed to function without material connections to buildings. As a result, there will be less creation of components because of the focus on detachability and mobility. However, under the new Civil Code, a material connection is not necessary for the creation of components, given the functional criterion.

immovable by 'incorporation' as the criterion used to determine what is an inherent component[76], while at the same time giving a distinct meaning to 'incorporated' that does not follow that same, broader criterion. The statement in article 3.47(3) CC that goods can be immovable by incorporation despite not being incorporated, which may seem non-sensical at first glance, is easier to understand when read as 'goods can be immovable by incorporation even if they are only functionally an inherent component of incorporated buildings and plantations in the absence of a material connection'. Interestingly, the explanatory memorandum contains the assumption that the state of being 'incorporated' in the sense of article 3.47(2) CC (i.e., having a material connection with the good immovable by its nature) entails that the good has lost all autonomy (which is unsurprising given that the incorporation mentioned in article 3.47(2) CC leads to the good becoming an inherent component, which by its very nature is not an autonomous good).[77] The explanatory memorandum goes on to state that 'nonetheless' (*evenwel/toutefois*) non-incorporated goods are also regarded as immovable.[78] It is peculiar that the explanatory memorandum uses an adverb meant to express contrast here. It cannot be the case that the Committee wished to suggest that those non-incorporated goods are to be regarded as autonomous. After all, articles 3.47(2) and 3.47(3) CC are limited to 'inherent components' and, as mentioned before, the essence of that notion is that an inherent component is not an autonomous good. Thus, 'autonomy' is to be read in the specific meaning 'loosely connected' (and, thus, easy to remove without damage) here.

With regard to the second type of immovables by incorporation (article 3.473(3) CC), SAGAERT writes that 'parts' and 'equipment' of a building are immovable, because they are inherent components of the building, even if they are not incorporated (in the meaning of articles 3.43(2) and 3.47(3) CC). SAGAERT defines 'parts', on the one hand, as all the goods that form one whole with the building and that are *necessary* to complete the building for its normal use (water pipes, gas pipes, electrical wiring, doors, staircases, shutters, etc. are given as examples by the author, partly on the basis of case law; even keys of a home are considered immovable as 'part' of the home).[79] 'Equipment', on the other hand, is defined as all appliances installed in a building to make it *fully* functional.[80] Whereas parts are inseparably connected with the building due to their function, equipment can be installed in another building as well. Citing case law SAGAERT lists heating/cooling infrastructure, awning, photovoltaic panels, elevators, and bathroom and kitchen appliances as examples of equipment. The examples chosen by the author illustrate that goods are not necessarily easily divided along the line of 'inseparability from a single building'. For example, it is unclear why shutters (i.e., sets of slats meant to offer security against burglary and to protect windows against the elements, in particular sunlight) are considered parts while awnings (i.e., canvasses meant to protect windows against the elements, in particular sunlight) are seen as equipment. Both fulfill similar functions, are manufactured in standard sizes, and are mostly not exclusive or individualized to a single building,[81] whereas one could argue that the latter is more often the case for piping and wiring adjusted to the unique shape of a building. Therefore, APERS argues for the abolition of the distinction between parts and equipment.[82] Moreover, the distinction between these concepts becomes blurred when considering the difference between 'necessity for normal use' and 'full functionality'. Since both parts and equipment are deemed 'inherent components' both are

[76] Memorandum Book 3, p. 118.
[77] Memorandum Book 3, p. 118.
[78] Memorandum Book 3, p. 118.
[79] V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 211, no. 216.
[80] V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 211-212, no. 216
[81] The same can be said of doors, which are also given as an example of the notion 'parts'.
[82] A. APERS, *Wilsautonomie bij de kwalificatie van goederen,* Antwerp, Intersentia, 2017, p. 143, no. 126.

theoretically 'essential', which calls this distinction into question. In any case, these concepts are not explicitly addressed in the statutory text of Book 3 or its explanatory memorandum.

Finally, accessories of an immovable are presumed to be immovable by purpose (article 3.47(4)). Article 3.9 CC stipulates: insofar as they belong to the same person, a good is an accessory of another good either if it is permanently affixed or attached to it or if it serves the operation or preservation of the principal good.[83] It is important to stress the prerequisite that the goods belong to the same person. For example, the movable goods (e.g., a forklift) owned and used by the lessee of a commercial warehouse (i.e., an immovable good) to exploit the warehouse cannot become immovable by purpose, since the forklift and warehouse have different owners. Thus, the category of immovable by purpose is not relevant for PaaS contracts, where the service provider (i.e., the owner of the product) and the customer (i.e., the owner of the immovable good wherein the product is used) are different persons.

According to the Committee, an 'accessory' differs from an inherent component in that it has a degree of autonomy not found in an inherent component. An accessory can be an independent part of one's patrimony if it no longer meets the requirements to be considered an accessory.[84] CARETTE and JANSEN give the chairs and tables of a restaurant as an example of goods that are immovable by purpose. The chairs and tables belong to the immovable good and serve its 'operation', but remain autonomous.[85] At the same time, the Committee stresses that the 'substance of the good in which an inherent component is incorporated' is what makes it possible to differentiate between accessories and inherent components.[86]

2.4 Accession & unity principle

2.4.1 Principle of accession

The owner of a good is also the owner of the inherent components of that good (article 3.8, §2(2) CC). If a good becomes an inherent component of another good, naturally or because of human action, the owner of the other good immediately and by operation of law also becomes owner of the inherent component (article 3.55 CC). This is called accession (*natrekking/accession*). Both 'movable accession' (i.e., two movable goods are united in such a way that they form a larger good; e.g., the battery pack placed along the floor pan on the undercarriage of an electric vehicle[87] to create a functional electric vehicle) (article 3.57 CC) and 'immovable accession' (i.e., a movable good is incorporated in an immovable good; e.g., heating/cooling infrastructure is incorporated in a commercial warehouse that is already built on land) (article 3.64 CC) are possible. Specifically for immovable goods, constructions and plantations erected above, on, or below the surface of the land are presumed to belong to the owner of the land.[88] Concretely, accession entails that the right of ownership of the larger good

[83] V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Wolters Kluwer, 2021, p. 184-185, no. 185.
[84] Memorandum Book 3, p. 27-28
[85] N. CARETTE and R. JANSEN, *Handboek goederenrecht*, Antwerp, Intersentia, 2022, 68, no. 77.
[86] Memorandum Book 3, p. 119.
[87] See NIO as an example of a PaaS concerning this product (battery as a service) (https://www.nio.com/nl_NL/baas). This is the example given by VAN DE VOORDE in J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 209-236.
[88] See extensively on immovable accession: S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, 600 p.

(movable accession) or of the immovable good (immovable accession) is expanded to include the incorporated good.[89] If the incorporated good was owned by another person, this person loses the right of ownership to the owner of the incorporated good.

Both 'incorporation' (see earlier on the distinction between movable and immovable goods) and 'accession' hinge on the same criterion of the 'creation of components'.[90] Both concepts take form within the context of the unity principle.

Accession is justified on the unity principle.[91] Doctrinal literature gives several reasons for the existence of the unity principle, which has its roots in Roman law.[92] Two main reasons with particular importance for the circular economy are (1) the protection of third parties by enabling them to expect legitimately that the owner of a 'unit' is the owner of the entirety of the unit and (2) the preservation of the economic value of the immovable good and its inherent components in the belief that the immovable good is worth more as a whole than the sum of the value of its inherent components taken separately.[93] VERHEYE notes that the unity principle is part of a cascade of important property law principles.[94]

- The unity principle determines what can be the object of a property right based on the 'specificity principle', which holds that property rights can only be vested on specific goods and not on abstract values (article 3.8, §1 CC). Thus, the unity principle determines what exactly is a specific good.
- In turn, the specificity principle forms part of the 'transparency requirement' for property rights to have effects against all (*erga omnes*).[95] Third parties must know or ought to know of the existence of a property right for it to take effect against them.

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[89] S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, p. 50-51, no. 36; N. CARETTE and R. JANSEN, *Handboek Goederenrecht*, Antwerp, Intersentia, 2022, p. 177, no. 275; V. SAGAERT, *Goederenrecht* in *Beginselen van het Belgisch Privaatrecht*, Malines, Wolters Kluwer, 2021, p. 1189, no. 137.

[90] This is a conscious choice of Committee, see Memorandum Book 3, p. 123 and 135-136.
See N. CARETTE and R. JANSEN, *Handboek Goederenrecht*, Antwerp, Intersentia, 2022, p . 65, 179 and 304-305, nos. 75, 281 and 535; A. DESPRET, "Dispositions générales et classifications en droit des biens : questions choisies" in N. BERNARD and B. HAVET (EDS.), *Le droit des biens revisité. Après la loi du 4 février 2020*, Limal, Anthemis, 2021 (19) p. 59, no. 5; D. GRUYAERT, "Eigendom", in V. SAGAERT et al. (eds.) *Het nieuwe goederenrecht*, Antwerp, Intersentia, 2021, (249) p. 266-267, no. 30; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Wolters Kluwer, 2021, p. 178-179, no. 176.

[91] B. VERHEYE, "Towards Sustainable Real Estate in a Circular Economy" in S. DEMEYERE and V. SAGAERT (eds.), *Contract and Property with an Environmental Perspective*, Antwerp, Intersentia, 2020, (77) p. 101, no. 26; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 187, no. 8.

[92] For an overview of all reasons (and nuances to these reasons) for (immovable) accession, see S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, p. 28-34, nos. 19-25.

[93] B. VERHEYE, "Towards Sustainable Real Estate in a Circular Economy" in S. DEMEYERE and V. SAGAERT (eds.), *Contract and Property with an Environmental Perspective*, Antwerp, Intersentia, 2020, (77) p. 101, no. 26. Repeated by D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) 525-526, no. 37; J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 213, no. 10 and p. 227-229 nos. 50-58. See also V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, 181, no. 178; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 193, no. 13 and, under Dutch law, R. KOOLHOVEN, "Gebouwen en hun bestanddelen in een meer circulair goederenrecht" in R. KOOLHOVEN et al. (eds.), *Circulair bouwen*, The Hague, Instituut voor Bouwrecht, 2018, (5) p. 15-18.

[94] B. VERHEYE, "Towards Sustainable Real Estate in a Circular Economy" in S. DEMEYERE and V. SAGAERT (eds.), *Contract and Property with an Environmental Perspective*, Antwerp, Intersentia, 2020, (77) p. 101-102, no. 26.

[95] M.E. STORME, *Zekerheden- en insolventierecht,* Ghent-Mariakerke, 2024*,* p. 38.

VERHEYE remarks that the idea that the economic value of the whole is paramount becomes obsolete[96] in a circular economy, following the example of Dutch authors[97].[98] Against the backdrop of increased modularity of goods in the circular economy the value of the individual components at the very least gains importance. However, VAN DE VOORDE warns that further (interdisciplinary) research is needed to substantiate the claim that the circular economy creates greater value.[99] The Dutch author HOOPS has conducted a law and economics analysis, concluding that deviating from the unity principle in a circular economy offers added value, albeit at the cost of increased expenses for gathering information and judicial proceedings.[100]

2.4.2 Statutory exceptions to accession

2.4.2.1 Introduction

The unity principle is of mandatory law.[101] In principle, contracting parties cannot create a separate property law status for an inherent component of a good. However, the legislature can create statutory exceptions that allow contracting parties to deviate from that principle.[102] Two exceptions, particularly relevant to this research report, are (1) the waiver of accession trough the creation of a right of superficies and (2) the retention of title relating to a good that is incorporated into the immovable good of the debtor.[103]

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[96] Arguments against this rationale of the unity principle and its consequences (e.g., the fact that the value of goods is concentrated in a single pair of hands) can be voiced already in a more linear economy, see under Dutch law E.F. VERHEUL and F.M.J. VERSTIJLEN, "Eigendom van roerende zaken, met name originaire wijzen van eigendomsverkrijging (titels 1 en 2). Een pleidooi voor meer continuïteit in het goederenrecht" in L. C. A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst*, The Hague, Sdu, 2016, (65) p. 76.

[97] See, for example, A.J. MES et al., "Eigendom van onroerende zaken, met name natrekking (titels 1 en 3). Flexibele eigendomsverhoudingen in het vastgoedrecht" in L. C. A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst*, The Hague, Sdu, 2016, (145) p. 164; R. KOOLHOVEN, "Gebouwen en hun bestanddelen in een meer circulair goederenrecht" in R. KOOLHOVEN et al. (eds.), *Circulair bouwen*, The Hague, Instituut voor Bouwrecht, 2018, (5) p. 20; J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht*, Deventer, Wolters Kluwer, 2022, p. 396. In E.F. VERHEUL and F.M.J. VERSTIJLEN, "Eigendom van roerende zaken, met name originaire wijzen van eigendomsverkrijging (titels 1 en 2). Een pleidooi voor meer continuïteit in het goederenrecht" in L. C. A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst*, The Hague, Sdu, 2016, (65) p. 76 assert that in situations where the combined value of the whole exceeds that of its individual parts, the owner is likely to be content forfeiting the right to revindicate the good based on a retention of title clause, as this would facilitate obtaining payment by monetizing the entire good instead. In a non-translative PaaS-contract, however, the service provider is not interested in obtaining payment for the transfer of ownership as there is no intention to transfer that ownership.

[98] B. VERHEYE, "Towards Sustainable Real Estate in a Circular Economy" in S. DEMEYERE and V. SAGAERT (eds.), *Contract and Property with an Environmental Perspective*, Antwerp, Intersentia, 2020, (77) p. 109, no. 33. See concurring D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 526, no. 37; R. TIMMERMANS, *Erfpacht. Oorsprong, ontwikkeling en modern instrumenteel gebruik*, Malines, Wolters Kluwer, 2023, p. 258, no. 364. See also V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1548-1549, no. 9.

[99] J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 229, no. 56.

[100] B. HOOPS, "Een rechtseconomisch perspectief op natrekking in de energietransitie en de transitie naar de circulaire economie", *NTBR* 2020, (298) p. 298-311.

[101] V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 179, no. 177.

[102] For this reason, article 3.8, §2(2) CC stipulates that a property right to an inherent component cannot be established "notwithstanding any clause to the contrary *and* unless a statute provides otherwise (translation) (emphasis added)".

[103] For an overview of exceptions, see V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 179-180, no. 177.

2.4.2.2 Accession & right of superficies

The owner of a good can (temporarily) waive the right of ownership that would arise based on the accession of inherent components newly added to that good.[104] Following article 3.1 CC, the rules on accession are of suppletive law.[105] However, since accession is founded in the unity principle, contractual deviations are only possible within the framework of the statutory exceptions to the principle.[106] The renunciation of accession results in the creation of a right of superficies [107] (pertaining to immovable goods [108]) (*opstalrecht/droit de superficie*). [109] By granting a right of superficies, it is, for example, possible to award to a building a property law status that is different from the status of the land on which it stands.

A right of superficies is a real right of use that grants ownership on volumes[110], whether or not built, that are situated, in whole or in part, on, above, or under the land of someone else in order to have buildings or plantations in those volumes (article 3.177 CC). Notwithstanding any clause to the contrary, the duration of a right of superficies cannot exceed ninety-nine years. A right of superficies can be extended as long as its total duration does not exceed ninety-nine years.[111] It can be renewed with the explicit consent of both parties (article 3.180(1) CC). Exceptionally, the right of superficies can be established for more than 99 years, or even perpetual (article 3.180(2) CC).[112] The right of superficies is only opposable to third parties if it is granted by authentic deed.

In principle, a right of superficies can only be granted for volumes that are 'autonomous', which means each volume that allows to create an autonomous building or plantation (i.e., to install

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[104] This is uncontested with regard to immovable accession. However, there is ongoing discussion about whether waiving movable accession—and thereby establishing a right of superficies pertaining to movable goods—is possible. For a comprehensive discussion on movable accession and an endorsement of the possibility to waive it, see extensively J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 209-236. SAGAERT disagrees that this is possible, see V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 178, no. 176, footnote 55 (referring to an older article of VAN DE VOORDE that deals with the property law of the old Civil Code; VAN DE VOORDE repeats the endorsement in the cited source of 2022, which deals with new property law). Under Dutch law, a right of superficies can only relate to immovable goods, see J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht*, Deventer, Wolters Kluwer, 2022, p. 392.

[105] S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen,* Antwerp, Intersentia, 2015, p. 42-45, no. 32; N. CARETTE and R. JANSEN, *Handboek Goederenrecht*, Antwerp, Intersentia, 2022, p. 182-183, no. 289.

[106] V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht,* Malines, Wolters Kluwer, 2021, p. 1197, no. 1381

[107] Also called a building right.

[108] See earlier footnote 104. The articles of the Civil Code only contain a right of superficies pertaining to immovable goods (see J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 223, no. 37). In the remainder of this text, 'right of superficies' will refer to the immovable variant unless explicitly stated otherwise to mean the movable counterpart.

[109] SAGAERT stresses that under the new Civil Code, the waiver of accession is only possible in the context of granting a right of superficies, see V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 179, no. 177 and p. 973, no. 1073, with reference to Cass. 19 May 1988, *Arr.Cass.* 1987-88, p. 1230; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 194, no. 15. For a theoretical background of the different ways to qualify the waiver of accession, see S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, p. 258 and following, nos. 210 and following.

[110] A 'volume' is a geometrical space defined in three dimensions geographically located in a specific location, see Memorandum Book 3, p. 334.

[111] Article 3.180(2) CC stipulates in which circumstances a right of superficies can be granted perpetually.

[112] See extensively C. DEBUSSCHER and D. GRUYAERT, "Het eeuwigdurende opstalrecht als instrument voor duurzaam grondgebruik: aandachtspunten vanuit het vastgoed- en omgevingsrecht", *TPR* 2023, p. 155-198; V. SAGAERT, "Het opstalrecht in het nieuwe goederenrecht: een eigentijdse volume-eigendom", *T.Not*. 2022, p. 531-559

an autonomous good in the volume).[113-114] An inherent component of a building, such as a brick in one of its walls, lacks independence and therefore cannot be the object of a right of superficies. Social conventions determine whether a component can be distinguished as a sufficiently independent volume within a larger whole and whether it can therefore be the subject of a separate right of superficies or not.[115] For instance, mere repairs, improvements, alterations or modifications to a building cannot be the object of a right of superficies (typical examples of non-autonomous works include PVC-windows, wall coverings, flooring and roofing[116]).[117] With regard to the example of solar power (energy as a service) it is said that a right of superficies is possible for the volume above the roof of a building in order to place photovoltaic panels, which are supposedly sufficiently autonomous towards the building upon which they are installed, but not for the volume of the roof itself to place photovoltaic roof tiles, as they supposedly lack sufficient autonomy.[118]

2.4.2.3 Accession & retention of title clause

Contracting parties can provide a 'retention of title clause' (*eigendomsvoorbehoud/clause de réserve de propriété*) in contracts that are meant to transfer the ownership of a good such as a

[113] N. BERNARD, "Dispositions générales (droit commun)", in N. BERNARD and V. DEFRAITEUR (eds.), *Le droit des biens après la réforme de 2020*, Limal, Anthemis, 2020, (19) p. 43, no. 50; S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, p. 232-233, no. 190; V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, 1005, no. 1106; N. CARETTE and R. JANSEN, *Handboek goederenrecht*, Antwerp, Intersentia, 2022, p. 858, no. 1347; N. CARETTE, "Opstalrecht", in V. SAGAERT et al. (eds.), *Het nieuwe goederenrecht,* Antwerp, Intersentia, 2021, (489) p. 497, no. 12. See specifically in the context of circular economy D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 525, no. 36; A. VAN VAERENBERGH and F. LEYMAN, "'Product als dienst'-overeenkomsten, een stap in de richting van de circulaire economie", *MER* 2019, (20) p. 28-29, no. 34.

[114] It is true that the object of the right of superficies is fundamentally the volume itself. The buildings and plantations erected within that volume are the result of exercising that right, not the right itself (see N. CARETTE and R. JANSEN, *Handboek goederenrecht*, Antwerp, Intersentia, 2022, p; 854, no. 1342; A. BROHEZ and L. BELLINCK, *Emphytéose et superficie*, Brussels, Larcier, 2023, p. 134, no. 93). Nonetheless, the 'autonomy' of a volume is defined by the potential outcomes enabled by the right of superficies. One must assess whether it is possible to erect autonomous goods within the volume. In practice, this means that the intentions of the parties and, thus, the actual buildings and plantations envisioned by them are not without relevance. The intentions of the parties ultimately dictate the exact position and dimensions of the volume. When creating a right of superficies for a volume intended for photovoltaic roof tiles (though, as will be explained later, this is likely not possible), parties will describe a volume situated where roof tiles are typically placed and encompassing the space needed for installation. However, such a volume is not suitable for photovoltaic panels (which have sufficient autonomy for a right of superficies, as will be detailed later), which are placed in a volume above the roof tiles.

[115] R. TIMMERMANS, *Het zakelijk gebruiksrecht van erfpacht in het nieuw Burgerlijk Wetboek,* Mechelen, Kluwer, 2021, 172.

[116] V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Wolters Kluwer, 2021, no. 1106.

[117] See among others N. CARETTE and R. JANSEN, *Handboek goederenrecht,* Antwerp, Intersentia, 2022, p. 858, no. 1347; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Wolters Kluwer, 2021, no. 1106; V. SAGAERT, "Het opstalrecht in het nieuwe goederenrecht: een eigentijdse volume-eigendom", *T. Not*. 2022, (531) p. 533-534, no. 4. For sources dating from before the property law reform see among others Cass. 23 December 1943, *Arr.Verbr*. 1944, p. 60; Antwerp 31 January 2017, *TBBR* 2018, p. 230; Brussels 27 february 2001, *RW* 2001, p. 844; Ghent 5 March 2016, *T. Not*. 2016, p. 784; S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen,* Antwerp, Intersentia, 2015, p. 232-234, nos. 190-191; N. CARETTE, "Actuele ontwikkelingen zakenrecht 2015" in R. BARBAIX and N. CARETTE (eds.), *Tendensen Vermogensrecht 2016*, Antwerp, Intersentia, 2016, p. 62, no. 26; R. DERINE, F. VAN NESTE and H. VANDENBERGHE, *Zakenrecht*, IIB, Gent, Story-Scientia, 1984, no. 1024; F. LAURENT, *Principes de droit civil français*, VI, Brussels, Bruylant, 1871, p. 239, no. 176; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht,* Malines, Wolters Kluwer, 2014, p. 606, no. 761; B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, no. 65.

[118] B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 164, no. 34 and p. 188-189, no. 56; D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 525, no. 36.

sales contract (i.e., all contracts that contain a translative element[119]). The retention of title clause entails that the party transferring the ownership retains the ownership of the good until it is fully paid for or other stipulated conditions are met.[120] Until then the party receiving the good merely detains it.[121] Thus, the retained title acts as a security.[122] It ensures that the original owner of the good (i.e., the creditor) can revindicate the good in case the holder of the good (i.e., the debtor) fails to fulfill the obligations that constitute the counter-prestation for receiving the good.[123]

The retention of title clause is a second exception to the unity principle.[124] Article 71 Pledge Act stipulates that if goods sold[125] under retention of title become immovable by incorporation, the retention of title survives the incorporation as long as it has been registered in the pledge register. The sold goods retain a property law status that is separate from the status of the immovable in which they are incorporated and of which they have become inherent components. This entails that an inherent component can in fact be the object of a distinct property right as long as that status is knowable by third parties through the registration in the pledge register.[126] An example given by doctrinal literature: a contractor selling a wooden beam under retention of title who registers that retention of title in the pledge register remains the owner of that beam even if it is incorporated in a building.[127] The concrete result of article 71 Pledge Act is that the seller will still be able to revindicate the good that has been delivered to the buyer if the latter fails to perform the obligation to pay.[128]

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[119] See for an emphasis on this translative element, V. SAGAERT and J. DEL CORRAL, *Eigendomsvoorbehoud*, Malines, Wolters Kluwer, 2015, p. 6, no. 9; R. JANSEN, "Eigendomsvoorbehoud" in J. BAECK and M. KRUITHOF (eds.), *Het nieuwe zekerheidsrecht*, Antwerp, Intersentia, 2014, (139) p. 141, no. 5.

[120] J. CAEYMAEX and T. CAVENAILE, *Manuel des sûretés mobilières*, Brussels, Larcier, 2023, p. 232-233, no. 255.

[121] E. DIRIX and R. DE CORTE, *Beginselen van Belgisch privaatrecht (deel XII) - Zekerheidsrechten*, Antwerp, Kluwer Rechtwetenschapen, 1999, p. 384, no. 561; P. BECUE, "De wet van 11 juli 2013 met betrekking tot de hervorming van zakelijke zekerheden op roerende goederen (nieuwe pandwet). Principes en impact op de verzekeringssector. Het eigendomsvoorbehoud in België komt tot volledige maturiteit", *T.Verz.* 2014, (352) p. 368; D. GRUYAERT, *De exclusiviteit van het eigendomsrecht*, Antwerp, Intersentia, 2016, 525, no. 382.

[122] F. GEORGE, *Le droit des contrats à l'épreuve de la faillite*, Brussels, Larcier, 2018, p. 1020, no. 1095; V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021,p. 326, no. 337; N. CARETTE and R. JANSEN, *Handboek goederenrecht*, Antwerp, Intersentia, 2022, p. 346-347, no. 595. See extensively V. SAGAERT and J. DEL CORRAL, *Eigendomsvoorbehoud*, Malines, Wolters Kluwer, 2015, 178 p.

[123] R. JANSEN, "Eigendomsvoorbehoud" in J. BAECK and M. KRUITHOF (eds.), *Het nieuwe zekerheidsrecht*, Antwerp, Intersentia, 2014, (139) p. 143, no. 6; A. APERS and D. GRUYAERT, "Eigendomsvoorbehoud en onroerende incorporatie volgens de nieuwe Pandwet: welk nieuws onder de zon?", *TPR* 2015, (83) p. 87, no. 2.

[124] Memorandum Book 3, p. 26: V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Malines, Wolters Kluwer, 2021, no. 177.

[125] In a later section of this research report it is explored whether retention of title clauses are limited to translative contracts such as sales contracts in general and in the context of the Pledge Act specifically.

[126] B. VERHEYE, "Towards Sustainable Real Estate in a Circular Economy" in S. DEMEYERE and V. SAGAERT (eds.), *Contract and Property with an Environmental Perspective*, Antwerp, Intersentia, 2020, (77) p. 113-115, no. 114. JANSEN stresses that the opposability to third parties is the primary reason for the registration of the retention of title clause, see R. JANSEN, "Eigendomsvoorbehoud" in J. BAECK and M. KRUITHOF (eds.), *Het nieuwe zekerheidsrecht*, Antwerp, Intersentia, 2014, (139) p. 163, no. 37.

[127] F. HELSEN, "Pand en eigendomsvoorbehoud voorbij de onroerendmaking. De Nieuwe Pandwet en het notariaat", *Not.Fisc.M.* 2018, (17) p. 17; B. VERHEYE, "Towards Sustainable Real Estate in a Circular Economy" in S. DEMEYERE and V. SAGAERT (eds.), *Contract and Property with an Environmental Perspective*, Antwerp, Intersentia, 2020, (77) p. 114, no. 38.

[128] J. DEL CORRAL and K.W.C. GEURTS, "Het eigendomsvoorbehoud in de Belgische Pandwet en het Nederlandse BW", *NTBR* 2014, (article no. 31) no. 5.1.2.

3 Challenges in PaaS contracts

3.1 Different owners in PaaS contracts

3.1.1 Accession in PaaS contracts

As mentioned in the introduction, the main research question of this report is whether the parties in a PaaS contract can prevent the service provider from losing property rights by relying on contract law, without undermining the protection to third parties provided by property law based on the unity principle. With the necessary property law terminology outlined, this question can now be dealt with in more detail.

The main challenge in a PaaS contract is that the service provider, offering a product to the customer, wishes to remain its owner. The service provider merely intends to grant the customer a right to use the product. However, the product can be integrated ('incorporated') into a good owned by the customer. If the product can be seen as an inherent component of that good, the right of ownership of the service provider is threatened. In application of the unity principle, incorporation and accession will automatically take place – by operation of law – and the customer will become the owner of the incorporated service product. From a third-party perspective the customer indeed appears to own the product. While, internally, no incorporation or subsequent accession was agreed upon in the contract, the service provider may still face challenges with third parties. For instance, when a third party, namely a creditor of the customer, seizes the customer's good. The third party interacting with the customer's good may reasonably assume that the product offered as a service is incorporated into the customer's good and therefore assume that the entire good is owned solely by the customer.

For example, if a ventilation system (cooling as a service) is classified as an inherent component of the building where it is installed on the roof, no separate property right can exist for the system, and the property right on the main object (i.e., the building) will extend to include the ventilation system.[129] The system will be considered an inherent component if (a) it is installed in such a way that it cannot be removed without damaging either the building or the system itself, which might be the case if, for instance, ventilation shafts are installed in the building's roof and walls (i.e., the material criterion for the creation of inherent components) or (b) it is essential to the building's functioning, as could be the case in a temperature- and humidity-controlled warehouse used for storing particular goods, such as pharmaceuticals (i.e., the functional criterion for the creation of inherent components). A ventilation system might even be considered necessary for the completeness of an 'ordinary' building and its normal use. The Court of Cassation considers it to form a finished unity with the building.[130] Thus, the risk of accession remains even if PaaS service providers design their products as modular and easy to remove. Even if they transfer ownership of low-value parts that tend to be materially connected

[129] Example given by V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 188, no. 8.
[130] Cass. 25 February 2019, *RW* 2020-2021, p. 853-856, note V. SAGAERT; V. SAGAERT, "Onroerend door incorporatie: over airco's en tunnelvisies" (annotation of Cass. 25 February 2019), *RW* 2020-2021, (853) p. 854-856.

to the customer's property (e.g., ventilation vents that might need to be installed in or mounted on walls) and retain ownership only of high-value, non-connected parts (e.g., the heat exchanger), making these central to the service aspect of the PaaS contract, the risk persists. If the product is considered essential as a whole because removing parts renders it non-functional, it can be viewed as incorporated in its entirety.[131] Deridder & Vermeir refer to this reasoning as 'conceptual indivisibility', aimed at preserving the 'economic identity' of what can be considered a 'network good' – often a product within an interconnected system, such as central heating systems, where the central heater and individual heating units (e.g., radiators) are linked by a network of pipes.[132]

3.1.2 Risks of accession

SAGAERT and DE SCHEPPER identify several risks that might result from accession.[133]

- First, there is the insolvency risk.[134] If the customer in the PaaS contract becomes insolvent[135], the service provider could face difficulties in reclaiming the product from the customer, facing other creditors with a possible stronger title.[136] Disputes about the ownership of the product can complicate the recovery of assets.
- Second, there is a contractual risk where the PaaS contract might be reclassified as an installment sale, bringing it under the regulation of consumer credit.
- Third, there is a proprietary risk associated with the expectations of third parties due to the transparency requirement for property rights. The legitimate expectations that the customer is the actual owner of the product of the PaaS contract have as a result that, for example, a sale to a third party of the house of which the product has become an inherent component also includes the product itself given that the whole house is viewed as a unified entity.

As mentioned in the introduction, these risks could discourage parties interested in adopting a PaaS business model. Given the circular potential of this model[137], the question arises as to whether potential PaaS providers can mitigate these risks effectively. Is it feasible for them to rely on statutory exceptions to accession? What might be the advantages and drawbacks of each exception?

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[131] See the following cases wherein the courts regard all the components of a central heating system to be incorporated as a whole because removal of singular components, even those that are not 'incorporated' (i.e., materially connected), would render the system non-functional, Brussels 3 November 1950, *Rec.gén.enr.not.* 1951, 298; Ghent 10 November 2003, *TBH* 2004, (405) 407; court of first instance Brussels 11 December 1958, *JT* 1959, 168. See also Liège 11 September 2014, *NjW* 2015, (320) 321 (obiter dictum). See also Mons 29 March 2019, *FJF* 2020, 412 ("Au vu de ces éléments, il y a lieu de considérer que le matériel et l'outillage a fait l'objet d'une union (…)").

[132] L. DERIDDER and T. VERMEIR, *Leidingen voor nutsvoorzieningen*, Bruges, die Keure, 2000, p. 124, no. 159.

[133] V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 185-186, nos. 7-8.

[134] Regarding the insolvency risk, see extensively D. VOINOT, "Servitization in real estate and insolvency risk" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (211) p. 211-217.

[135] Used here as the generic term for the factual state of financial distress in which a person is unable to fulfill debts with available assets.

[136] There is also an insolvency risk for the customer in a PaaS contract. If the service provider becomes insolvent, the continuation of services associated with the product is jeopardized. Additionally, the customer may face claims from the service provider's creditors seeking to revindicate the product.

[137] In the previous research report on model clauses for PaaS, it is addressed that the PaaS business model holds potential for circularity but that this is not an inherent trait.

3.2 Right of superficies as an escape route?

3.2.1 Pro memoria: requirement of 'autonomy'

As explained above, a right of superficies can only be granted for volumes that are sufficiently 'autonomous', i.e. each volume that allows to create an autonomous building or plantation. The question whether a volume is sufficiently autonomous to be the object of a right of superficies is determined by the social conventions (*supra*). As inherent components are by definition not autonomous, they cannot be the object of a right of superficies.

Several authors have explored the possibility of interpreting the unity principle—and, by extension, the notion of an inherent component—in a more lenient manner with respect to (immovable) accession against the backdrop of the evolution towards a more circular economy. An alternative interpretation of the requirement of 'autonomy' would allow more leeway for rights of superficies.

3.2.2 An alternative, more lenient interpretation of the right of superficies

3.2.2.1 Arguments pro lenient interpretation

VERHEYE – following authors such as BOULY[138] – writes that the requirement of autonomy is paradoxical.[139] On the one hand, as an exception to the unity principle, a right of superficies impedes accession. On the other hand, the unity principle continues to determine the boundaries of the right of superficies and is, thus, in essence confirmed. According to the author this illustrates that the unity principle is more of a gradual concept than an absolute rule. The author argues that the endurance of the unity principle can be explained by its function to preserve the economic value of the immovable good and its inherent components. As long as the inherent component is able to exist independently, there is no real danger that a separate property law status would lead to a loss of value. Therefore, one fundamental rationale for the unity principle—preservation of value—should not obstruct the creation of a distinct property status (for the product offered as a service in a PaaS contract).

Further, VERHEYE writes that the criterion of autonomy is arbitrary.[140] Referring back to the example of photovoltaic panels and roof tiles, the author notes that both fulfill the same function in a building. In particular where the photovoltaic panels are the only source of electricity generation the loss of value of the building in their absence could be as great as would be the case were the roof tiles to be removed according to the author.[141] Thus, VERHEYE argues

[138] S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, p. 233-234, no. 191.
[139] B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 165-166, no. 34. See concurring V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 195-196, no. 16.
[140] B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 165-166, no. 34.
[141] A nuance to this argument is that although photovoltaic panels fulfill the 'same function' as roof tiles regarding electricity generation, roof tiles have additional purposes. After all, the arguably primary function of roof tiles is to close off a building and protect its interior from the elements. It seems difficult to imagine a scenario in which a building without an electricity supply would be worth as much as the same building without an electricity supply but also without a functional roof.

that far more important than the autonomy of the good is the certainty for third parties that the good has a separate property status. From the perspective that it is necessary to stimulate the circular economy through property law, the author advocates a more lenient approach to the right of superficies by allowing the possibility to grant it on all components and not only those that are sufficiently autonomous, but only if enough publicity is given to the right of superficies (e.g., by registering it in a public database).[142] The author refers to the registration of a retention of title clause, intended to ensure third-party legal certainty, and its substantial impact on the unity principle (more on this to follow) to bolster the assertion that Belgian property law adopts a lenient approach to the unity principle as long as deviations are adequately publicized.[143] Therefore, a second foundational reason for the unity principle should not necessarily act as a barrier to establishing a separate property status (for the product offered as a service in a PaaS contract).

This position of VERHEYE echoes that of Dutch authors like MES *et al.* who similarly remark that to allow development of the circular economy more space should be provided for party autonomy to deviate from the principle of accession, provided that the knowability of those deviations is ensured through registration in public registers.[144] CHAO-DAVIS even goes so far as arguing that the unity principle is non-existent in the sense that it is merely a facade for legal certainty.[145] In a similar vein, GRUYAERT has already highlighted that several Belgian statutory exceptions to accession create separate property status without alternatives for the legal certainty of third parties (e.g., a method to register the status in a public register), which shows that the legal certainty of third parties does not reign supreme.[146] Finally, TIMMERMANS writes that "in and for the circular economy, a legal construct could be developed with the aim of 'waiving component creation' (own translation)".[147]

Unlike some other Dutch authors, none of the authors mentioned advocates the complete abolishment of accession on the basis of the unity principle.[148] The suggestion is not to eliminate accession entirely, at least not without implementing additional measures to address the potential loss of legal certainty for third parties (e.g., requiring some form of registration of the separate property law status) and retaining accession as a subsidiary rule.

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[142] B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 171-173, no 40. See also VAN DE VOORDE, who agrees that such an approach is conceivable. The author writes that public registers exist for immovable goods, though they are less efficient than, for example, Dutch public registers. However, similar registers do not exist for movable goods. The author suggests that the pledge register (more on this to follow) could fulfill this function, see J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 227-228, nos. 52-53.

[143] B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 176-177, no. 43.

[144] A.J. MES et al., "Eigendom van onroerende zaken, met name natrekking (titels 1 en 3). Flexibele eigendomsverhoudingen in het vastgoedrecht" in L.C.A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst*, The Hague, Sdu, 2016, (145) p. 166.

[145] M.A.B. CHAO-DUIVIS, "Privaatrechtelijke aspecten van de circulaire economie in het bijzonder circulair bouwen (deel II)", *TBR* 2017, (1032) p. 1038.

[146] D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 529-530, no. 41.

[147] R. TIMMERMANS, *Erfpacht. Oorsprong, ontwikkeling en modern instrumenteel gebruik*, Malines, Wolters Kluwer, 2023, p. 260, no. 368. The author seems to endorse implicitly a more flexible right of superficies.

[148] See also J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209), p. 227 and following, nos. 49 and following as an author who nuances the need to abolish existing property law principles.

3.2.2.2 Cautionary arguments against overly lenient interpretation

Other authors warn against an overly lenient interpretation, at least identify some hurdles for its acceptance. For instance, SAGAERT and SAGAERT & DE SCHEPPER argue that not all inherent components can become the object of a separate property right.[149] Although they accept that the unity principle is to be applied sufficiently leniently in the transition towards a circular economy – the open concept of 'social conventions' allows for such an approach (see more on this concept below and above)[150] – they stress that the object of the right of superficies should still be sufficiently independent. As regards the opposability of the right of superficies towards third parties, the requirement and costs of an authentic deed would be disproportionate if it were possible to create a right of superficies on all kinds of inherent components.[151]

GRUYAERT also discusses this alternative approach.[152] The author notes that a more flexible 'circular' right of superficies as put forward by VERHEYE is not easily reconciled with the *numerus clausus* in Belgian property law (article 3.3 CC) (i.e., the principle that only the legislature can determine which property rights are possible) and she highlights the practical encumbrances of a right of superficies (i.e., the costs thereof, limited duration, et cetera) as well.

Some Dutch legal scholars write that not all inherent components can be the object of a right of superficies.[153] They hold the view that the required independent nature of the object of the

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[149] See similarly, S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, 232-234, no. 190-191.

[150] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1548-1549, no. 9; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 197, no. 17. See also V. SAGAERT, *Beginselen van Belgisch privaatrecht (deel V) - Goederenrecht*, Malines, Wolters Kluwer, 2021, p. 180-181, no. 178. GRUYAERT refers to the concept of social conventions to argue in favor of a lenient approach to the retention of title clause (more on this to follow), see D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 528-529, no. 40. TIMMERMANS also argues that a custom could be developed to construct valuable movable goods and enter into agreements in such a way that the ownership of these movable goods will remain in the hands of the service provider, see R. TIMMERMANS, *Erfpacht. Oorsprong, ontwikkeling en modern instrumenteel gebruik*, Malines, Woltes Kluwer, 2023, p. 260, no. 367. Finally, Dutch authors similarly assert that Dutch property law concepts (e.g., the 'incompleteness criterion' in the context of accession) can evolve in response to changing social conventions if the transition towards a circular economy necessitates such changes E.F. VERHEUL and F.M.J. VERSTIJLEN, "Eigendom van roerende zaken, met name originaire wijzen van eigendomsverkrijging (titels 1 en 2). Een pleidooi voor meer continuïteit in het goederenrecht" in L. C. A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst*, The Hague, Sdu, 2016, (65) p. 84.

[151] V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 197, no. 17.
Regarding the practical encumbrances of a right of superficies and its limited duration, see also J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 225, no. 45 and under Dutch law W.H.M. REEHUIS and A.H.T. HEISTERKAMP, *Pitlo (deel 3) - Goederenrecht*, Deventer, Wolters Klwuer, 2012, p. 489, no. 668; E.F. VERHEUL, "Eigendomsvoorbehoud, bestanddeelvorming en natrekking", *WPNR* 2015, (237) p. 241; A.M. SCHMIDT, "Diensten in de circulaire economie en enkele mogelijke privaatrechtelijke belemmeringen", *M en R* 2017, (812) 816; R. KOOLHOVEN, "Gebouwen en hun bestanddelen in een meer circulair goederenrecht" in R. KOOLHOVEN et al. (eds.), *Circulair bouwen*, The Hague, Instituut voor Bouwrecht, 2018, (5) p. 50; K. HILWERDA and A. BOS, "Te huur: duurzame apparatuur – goederenrechtelijke, verbintenisrechtelijke en huurrechtelijke kansen en obstakels", *Vastgoedrecht* 2020, (216) 219; J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht*, Deventer, Wolters Kluwer, 2022, p. 392.

[152] D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) 527-528, no. 38.

[153] B. LEGGER, "De circulaire economie en het product-als-dienstmodel in het Nederlandse goederenrecht", *Tijdschrift voor Zakenrecht* 2018/3-4, par. 3; E.E. MAATHUIS, "Privaatrechtelijke obstakels op weg naar een circulaire economie", *Actioma* 2022/3, (22) p. 29; H.D. PLOEGER, *Horizontale splitsing van eigendom*, Deventer, Kluwer, 1997, p. 214; P.J. VAN DER PLANK and D. DE JONG, "Instrumenteel gebruik van het recht van erfpacht in het kader van circulair bouwen", *WPNR* 2019/7224, p. 65;

right of superficies does not imply that the building component must be physically autonomous: it is sufficient that the components are economically independently exploitable and the division by the right of superficies is economically acceptable.[154] According to LOKIN, the creation of a right of superficies is only possible if components retain their identity, which means, according to this author, that they retain their specific characteristics and remain individually recognizable after disassembly.[155] This implies that only inherent components that meet the functional criterion can be the object of a right of superficies, but not the materially inherent components.[156]

3.2.3 Potential issues regarding this alternative interpretation for PaaS contracts

The alternative approach would allow rights of superficies on all kinds of inherent components, even though such components normally lack the autonomy required for such rights. However, even within the framework of a more lenient approach to accession – that has taken the hurdles of a.o. the statutory *numerus clausus* of property law – several issues remain.

- First there are practical encumbrances: a right of superficies requires notarial authentication for its opposability towards third parties, which can be both costly and time-consuming.
- Another point of attention is raised by Dutch authors: the registration of all the possible rights of superficies (and other property rights on inherent components) could lead to the 'contamination' of the public registers, meaning in this context[157] that their legibility and utility is diminished.[158] This risk could be mitigated by more performant public registers (e.g., through digitalization).[159] As such, PLOEGER asserts that the problem of 'contamination' is not caused by the existence of 'more' or 'fragmented' rights, but by their deficient registration.[160]

P.J. VAN DER PLANK, *Natrekking door onroerende zaken*, Deventer, Kluwer, 2016, p. 42-54; C.H.A. VAN OOSTRUM, "(On)zekerheden bij het financieren van het product-dienstmodel", *Onderneming en Financiering* 2020/01, (27) p. 38; S.E. BARTELS and A.A. VAN VELTEN, *Mr. C. Assers Handleiding tot de beoefening van het Nederlands Burgerlijk Recht. 5. Zakenrecht, Eigendom en beperkte rechten*, Deventer, Kluwer, 2017, no. 248c.

[154] K. HOOFS, *Doorbreking van de natrekking in rechtsvergelijkend perspectief*, 2013, 100; J.C.T.F LOKIN, Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht, Deventer, Wolters Kluwer, 2022, 395; W.H.M. REEHUIS, A.H.T. HEISTERKAMP, G.E. VAN MAANEN and G.T. DE JONG, *Pitlo, Het Nederlands burgerlijk recht, deel 3, Goederenrecht*, Deventer, Kluwer, 2021, no. 668; P.J. VAN DER PLANK, "Is het mogelijk art. 3:4 BW bestanddelen te verzelfstandigen door middel van het vestigen van een opstalrecht", *WPNR* 2016/7108; E.F. VERHEUL, "Eigendomsvoorbehoud, bestanddeelvorming en natrekking", *WPNR* 2015/7053; E.C.A. VERMEULEN, *Circulair bouwen: Knelpunten en oplossingen in het goederenrecht*, Nijmegen, Ars Aequi Libri, 2020, 49.

[155] For example, the engine in a car and the saddle of a bicycle. See J.C.T.F LOKIN, *Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht*, Deventer, Wolters Kluwer, 2022, 279; J.E. WICHERS, *Natrekking, vermenging en zaaksvorming: opmerkingen bij de algemene regeling voor roerende zaken in het Burgerlijk Wetboek*, Deventer, Kluwer, 2002, 65.

[156] J.C.T.F LOKIN, *Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht*, Deventer, Wolters Kluwer, 2022, 395-396.

[157] There are different types of contamination of public registers, see H.D. PLOEGER, "Het bouwen van luchtkastelen. Registervervuiling en de toelaatbaarheid van een recht voor een virtuele opstal" in P. VAN ES et al. (eds.), *Hulde aan Huijgen*, Deventer, Wolters Kluwer, 2023, (181) p. 182.

[158] R. KOOLHOVEN, "Gebouwen en hun bestanddelen in een meer circulair goederenrecht" in R. KOOLHOVEN et al. (eds.), *Circulair bouwen*, The Hague, Instituut voor Bouwrecht, 2018, (5) p. 22 and 50; J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht*, Deventer, Wolters Kluwer, 2022, p. 394.

[159] B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 175, no. 42.

[160] H.D. PLOEGER, "Het bouwen van luchtkastelen. Registervervuiling en de toelaatbaarheid van een recht voor een virtuele opstal" in P. VAN ES et al. (eds.), *Hulde aan Huijgen*, Deventer, Wolters Kluwer, 2023, (181) p. 186.

- Another issue is that a right of superficies has a limited duration, which could be unattractive to the service provider who wishes to never lose the ownership of the product offered as a service. It is possible to question whether this issue is truly problematic. Are there many products suitable for PaaS that would readily exceed the maximum duration of a right of superficies of ninety-nine years (e.g., the current industry standard regarding the lifespan of photovoltaic panels is 25 to 30 years[161])? Today it is perhaps the case that the maximum duration is sufficient for most products/service providers. However, this issue could become increasingly relevant in a circular economy given its utopian underpinning that products should be designed to last and remain functional as long as possible. In the future a lifespan of ninety-nine years might seem short. The solution then seems obvious: allow the right of superficies in PaaS contracts to be eternal. However, the legislature has intentionally restricted the situations in which an eternal right of superficies is possible, emphasizing that they are 'exceptional'.[162] The creation of an eternal right of superficies for PaaS contracts via jurisprudence would thus be *contra legem*.
- Finally, as discussed earlier, not everyone agrees that a right of superficies is possible in the context of movable accession, which could mean that this route is unavailable in PaaS contracts concerning solely movable products.[163]

Because of these issues the question arises whether the second exception to the unity principle, the retention of title clause, might be better suited.

3.3 (Im)proper use of retention of title clause?

3.3.1 Why include retention of title clauses in PaaS contracts?

It is likely that the parties in a PaaS contract will take up a 'property clause' in the contract that excludes any contractual acquisition of ownership by the customer.[164] The contentious question is whether the contracting parties can additionally include a retention of title clause to exclude all manners of original acquisition of ownership by the customer and prevent statutory incorporation and accession.

A retention of title clause could enable the contracting parties to prevent the creation of a perceived unity of ownership in the hands of the customer in the eyes of third parties. Thus, the potential advantages of a retention of title clause in PaaS contracts are clear.

[161] https://www.forbes.com/home-improvement/solar/how-long-do-solar-panels-last/ .
[162] Memorandum Book 3, p. 341-342.
[163] See footnote 104.
[164] It is without question that contractual acquisition can be excluded. See V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1553, no. 14, who writes that a 'retention of title clause' would not only exclude contractual acquisition but also all forms of original acquisition.

- First, a retention of title clause that is timely[165] registered[166] in the pledge register could ensure that the product offered as a service does not become immovable by incorporation by operation of law (article 71 Pledge Act).[167] Consequently, the product would maintain a separate property status in the eyes of third parties, regardless of whether it is incorporated in and became an inherent component of a good of the customer. This would mitigate the proprietary risk of accession.
- Second, the retention of title would take precedence over all other security rights, such as mortgages, regardless at what time the concurring property security was registered (article 58(2) Pledge Act).[168] This 'superpriority' granted to the party retaining ownership would be particularly relevant for managing the insolvency risk of accession. The person who has retained ownership is able to revindicate the product from the customer or the customer's estate (article 69(1) Pledge Act).

3.3.2 Possibility of retention of title in non-translative contracts, such as PaaS

3.3.2.1 Belgian doctrinal literature

The advantages may be clear, the question remains whether it is actually possible to include a retention of title clause in PaaS contracts. Some authors argue that a retention of title clause is not useful in a PaaS contract as there is no sale or other type of translative contract and, thus, no intention to transfer the ownership. What is not transferred need not be retained.[169]

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[165] The registration has to take place before the incorporation of the movable good, see court of first instance East Flanders (department Dendermonde) 12 July 2019, *TIBR* 2019, (69) p. 70. *Contra* V. FABRY, "La propriété réservée, la reine des sûretés? De quelques conflits de rang impliquant le créancier réservataire ", *Rev.Dr.Uliège* 2022, (33) p. 43-44, who denounces this case law arguing that prior registration is not a statutory requirement.

[166] In general retention of title clauses need not be registered in the public pledge register. There is no statutory obligation in that sense (see C. STANDAERT and E. VANHOVE, "Sûretés réelles mobilières : rappel des principes et jurisprudence récente" in F. GEORGE and A. TOUSSAINT (eds.), *Sûretés et procédures d'insolvabilité : le nerf de la guerre*, Limal, Anthemis, 2022, (7), p. 35, no. 53). Neither the validity nor the opposability of retention of title clauses require registration (see V. SAGAERT, "Het eigendomsvoorbehoud (en retentierecht) onder de Pandwet" in M. E. STORME (ed.), *Roerende zekerheden na de Pandwet*, Antwerp, Intersentia, 2017, (29) p.32, no. 8 and p. 33, no. 10). However, the protection against incorporation is only possible for registered clauses, as third parties have to be able to become aware that there is a deviation from the unity principle (see A. APERS and D. GRUYAERT, "Eigendomsvoorbehoud en onroerende incorporatie volgens de nieuwe Pandwet: welk nieuws onder de zon?", *TPR* 2015, (83) p. 100-101, no. 11 and p. 107, no. 16; V. FABRY, "La propriété réservée, la reine des sûretés ? De quelques conflits de rang impliquant le créancier réservataire ", *Rev.Dr.Uliège* 2022, (33) p. 42-43 (implicitly)). According to DURANT and JANSEN the registration merely has an effect for the opposability towards third parties. Even a non-registered retention of title clause survives incorporation between contracting parties who have consciously and freely consented to that retention of title clause (see I. DURANT, "Le droit de rétention et la réserve de propriété, deux sûretés réelles mobilières à part entière" in F. GEORGE (ed.), *Insolvabilité et garanties*, Brussels, Larcier, 2014, (33) p. 79, no. 50; R. JANSEN, "Eigendomsvoorbehoud" in J. BAECK and M. KRUITHOF (eds.), *Het nieuwe zekerheidsrecht*, Antwerp, Intersentia, 2014, (139) p. 163, no. 37).

[167] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1553, no. 14.

[168] A. APERS and D. GRUYAERT, "Eigendomsvoorbehoud en onroerende incorporatie volgens de nieuwe Pandwet: welk nieuws onder de zon?", TPR 2015, (83) p. 101–104, no. 13; P. BECUE, "De wet van 11 juli 2013 met betrekking tot de hervorming van zakelijke zekerheden op roerende goederen (nieuwe pandwet). Principes en impact op de verzekeringssector. Het eigendomsvoorbehoud in België komt tot volledige maturiteit", *T.Verz.* 2014, (352) p. 379.Regarding conflicts in precedence, including retention of title clauses, see extensively V. FABRY, "La propriété réservée, la reine des sûretés? De quelques conflits de rang impliquant le créancier réservataire ", *Rev.Dr.Uliège* 2022, (33) p. 44-65.

[169] A. VAN VAERENBERGH and F. LEYMAN, "'Product als dienst'-overeenkomsten, een stap in de richting van de circulaire economie", *MER* 2019, (20) p. 30, nos. 40-41.

A contrary point of view is defended by other authors. SAGAERT and SAGAERT & DE SCHEPPER argue that retention of title clauses could be useful in PaaS contracts.[170] GRUYAERT also argues that a retention of title should be possible in PaaS contracts.[171] All the authors present multiple arguments in support of this position.[172]

- First, there is an argument of legal coherence. Disallowing PaaS under a retention of title would result in the peculiar outcome that a seller of a product ultimately intended to transfer ownership, as soon as the price has been paid, could rely on a retention of title clause, while a service provider offering the temporary use of a product with no intention of transferring ownership at all could not.[173] It should be possible to include an 'unconditional' retention of title clause in a PaaS contract, in contrast to the conditional clauses[174] found in translative contracts, to make unequivocally clear that the ownership of the product offered as a service remains firmly in the hands of the service provider.[175]

  This argument of legal coherence is reinforced when considering the practicalities of a PaaS contract. In the PaaS framework examined in this research report, the service provider seeks the right to regain physical control of the product if necessary. A key aspect of the circular potential in PaaS contracts is that retrieved goods (or components thereof[176]) can be reused in new contracts with other customers. Consequently, the product offered as a service is likely to be designed to be as easy to remove as possible (e.g., through enhanced modularity), ensuring minimal material connections to the customer's good that would risk damage to either good upon removal. This makes it less likely that the product would be classified as an inherent component of the customer's property under the material criterion, with the functional criterion being more relevant. Put provocatively, in sales contracts (and other translative contracts with more 'traditional' retention of title clauses) the sellers ultimately do not care whether the sold good is returned to them or not. What they truly care about is receiving payment for the transfer of ownership (this is the security function of retention of titles clause, which will be dealt with in more detail below). If the sold good is incorporated – in the sense that it is materially connected to the good of the customer (compare with articles 47(2) and 47(3) CC) – and cannot be removed without damage, the seller's interest can be satisfied by receiving a portion of the proceeds from foreclosing the customer's entire good if that is the reasonable course of action.[177] The Pledge Act's protection against

[170] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1552-1553, nos. 14-15; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 202-203, no. 23.

[171] D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 530, no. 41.

[172] There is also the author TIMMERMANS, who simply writes that PaaS under retention of title is possible. However, this author does not substantiate that stance with arguments, see R. TIMMERMANS, "Circulair bouwen, cascohuur, servitisatie, Madaster en afstand van bestanddeelvorming", *T.Huur* 2021, (106) p. 125.

[173] See similarly B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, (107) p. 177, no. 43.

[174] The condition being that the title is retained until payment is made.

[175] For the term 'unconditional', see D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 520, no. 41.

[176] The good can be reused in its entirety (possibly after minor repair) or can act as a source of parts for the refurbishing or remanufacturing of other goods.

[177] The right of ownership over the good that has been handed over is then exercised on the part of the proceedings that reflect the value of the good.

statutory incorporation and accession, and the superpriority it contains, are specifically designed to facilitate this outcome. Sellers need not fear the creation of components via the material criterion and, hence, need not fundamentally worry about designing goods that are easy to remove. Thus, both legally and *materially* a PaaS service provider seeks greater control over the product itself. Service providers, more so than sellers, focus on directly protecting their ownership rights over the *product* offered as a service, rather than safeguarding the value it represents in their *patrimony*.[178]

One could even argue that retention of title clauses designed to enable reclaiming the factual possession of a good are particularly well-suited for PaaS contracts, especially given the underlying intent of the service provider to reclaim the product at the contract's end. A retention of title clause is not equally practical for all translative contracts. While the Pledge Act alleviates concerns about statutory incorporation and accession for parties transferring goods, practical considerations come into play when choosing between a retention of title clause and, for instance, requiring full payment in advance of delivery. For instance, in case it is unreasonable to claim the removal of a material inherent component, the foreclosure of the recipient's entire good can become complicated once there are other creditors.[179] In such cases, advance payment might be preferable to a retention of title clause, particularly if there is no feasible way to recover and reuse the good economically. Take, for instance, a contract of enterprise for painting interior walls: once applied, the dried-up paint cannot be reclaimed in a reusable, liquid form. Anticipating this in the risk assessment before concluding the contract with a potential customer, the painter may choose to forgo a retention of title clause altogether, as revindication would not restore the paint's original economic value.

- Second, there is a statutory, grammatical argument. Article 69(3) Pledge Act states that the right to revindicate a good on the basis of a retention of title clause can be exercised "regardless of the legal nature of the contract in which it is included" (own translation). Even though article 69(1) speaks of the 'purchase price', the broadly formulated Pledge Act is not limited to sales contracts (i.e., the prime example of a translative contract, where the seller transfers ownership of a good in exchange for payment by the buyer). The Pledge Act was explicitly amended during the parliamentary proceedings to broaden its scope to "bartering, contribution, mixed sales and services contracts, and so on" (own translation).[180]

  However, a statutory, grammatical argument acts as a double-edged sword. The inclusion of the term 'purchase price' in article 69(1) Pledge Act as well as the examples given of the broadened scope might suggest that, although the act's scope certainly extends beyond mere sales contracts, the legislature did not intend to decouple retention of title clauses from translative contracts. Using the same statutory text and parliamentary preparatory documents, one could argue that a transfer of ownership remains required, because the retention of title remains solely a security for the

[178] Of course the protection of the right of ownership right sought is meant to safeguard the own patrimony indirectly.
[179] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1557, no. 21.
[180] Amendments of 4 December 2012, *Parliamentary Documents* Chamber of Representatives 2012-2013, no. 53- 2463/003, p. 5-6 (amendment no. 20). See also V. SAGAERT, "Het eigendomsvoorbehoud (en retentierecht) onder de Pandwet" in M. E. STORME (ed.), *Roerende zekerheden na de Pandwet*, Antwerp, Intersentia, 2017, (29) p. 36-37, no. 17.

counter-prestation of the obligation to deliver a good with an eye to the transfer of ownership. For instance, in a sales contract that counter-prestation is to pay the purchase price for that transfer.[181] With bartering the counter-prestation is to deliver a good in exchange for the bartered good.

- Third, there is the argument that for the transparency in relation to third parties it makes no difference whether the underlying claim arises from a sales contract, a mixed sales and services contract or even simply a services contract. Third parties are able to consult the pledge register and take notice of the retained title.
- Fourth, there is the argument that society needs the transition towards a more circular economy to withstand some of the current global challenges driven by the unbounded extraction of natural resources. Property law should not stand in the way of that necessary transition but should facilitate progression. This 'functionalization' of property law was, next to modernizing property law, one of the central pillars of the Belgian property law reform.[182] Thus, the teleological argument is that the fundamental principles of property law, which are generally broad and open, underlying statutory provisions should be interpreted and applied with sufficient flexibility.[183] This is not the same as saying that we could do without property law altogether. Rather, all authors argue in a nuanced way that a new approach to concepts such as retention of title clauses should ensure that the necessary elements of the current property law framework are not undermined (see, as an example, the third argument concerning the need for sufficient publicity through the pledge register to protect third parties).[184] This teleological argument strengthens the statutory, grammatical argument and mitigates it shortcomings. It enforces the expansive view on the retention of title clause of the legislature.[185]
- Finally, SAGAERT and SAGAERT & DE SCHEPPER identify several 'advantages' of a retention of title clause that can be viewed as arguments supporting PaaS under retention of title, albeit that some of these arguments are less conceptual and more practical.[186]

  For example, the authors provide a law and economics argument to support their position. A PaaS under retention of title does not increase the transaction costs of contractual relationships, as the burden on parties to inform themselves through the pledge register remains the same as the current status quo. To clarify, when referring to the costs of 'contractual relationships' this pertains to contracts other than the PaaS

[181] A. APERS and D. GRUYAERT, "Eigendomsvoorbehoud en onroerende incorporatie volgens de nieuwe Pandwet: welk nieuws onder de zon?", *TPR* 2015, (83) p. 94, no. 7; V. SAGAERT and J. DEL CORRAL, *Eigendomsvoorbehoud*, Malines, Wolters Kluwer, 2015, p. 67, no. 91; D. GRUYAERT, "Het kredieteigendomsvoorbehoud", *TPR* 2016, (1205) p. 1214, no. 5. See also C. STANDAERT and E. VANHOVE, "Sûretés réelles mobilières : rappel des principes et jurisprudence récente" in F. GEORGE and A. TOUSSAINT (eds.), *Sûretés et procédures d'insolvabilité : le nerf de la guerre*, Limal, Anthemis, 2022, (7) p. 33, no. 48, who seem to limit article 69 Pledge Act to translative contracts.

[182] V. SAGAERT, "The background and general principles of the new Belgian property law", *EPLJ* 2021, (3) p. 6, no. 4.

[183] See, under Dutch law, K. HILWERDA and A. BOS, "Te huur: duurzame apparatuur – goederenrechtelijke, verbintenisrechtelijke en huurrechtelijke kansen en obstakels", *Vastgoedrecht* 2020, (216) p. 221-222 as authors who similarly invoke the need for teleological interpretation (to create a *ius tollendi* (i.e., a right of removal)).

[184] As the Dutch author KOOLHOVEN correctly states, finding a legal solution for society's challenges requires a balancing of different interests, see R. KOOLHOVEN, "Gebouwen en hun bestanddelen in een meer circulair goederenrecht" in R. KOOLHOVEN et al. (eds.), *Circulair bouwen*, The Hague, Instituut voor Bouwrecht, 2018, (5) p. 22.

[185] See also D. GRUYAERT, "Het kredieteigendomsvoorbehoud", *TPR* 2016, (1205) p. 1230, no. 21 who notes that the act 'leaves the door ajar' for an expanded view on the retention of title clause.

[186] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1558, no. 23; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 210, no. 33.

contract itself. Envisioned are potential contractual relationships that third parties might establish with the customer, wherein these third parties assess the suitability of the customer's property as collateral for fulfilling obligations before entering into a contract. That suitability could virtually be higher if the product offered as a service appears to be an inherent component of the customer's good. For immovable goods, parties already consult the pledge register prior to concluding contracts concerning those goods. According to VAN DE VOORDE, when it comes to movable goods, as long as circular business models that contain an exception to movable accession[187] are not common, the contracting parties have no duty to investigate with due care whether there is a separate property status for one of the components of the movable good. However, once such business models become widespread, transaction costs may increase compared to the current status quo.[188]

Furthermore, SAGAERT and SAGAERT & DE SCHEPPER assert that retention of title allows for a more lenient approach to the unity principle. They argue that since the product offered as a service was a separate movable good at the time of the contract's conclusion, with a retention of title clause, it can, by definition, maintain an autonomous existence. This argument offers an opportunity to reflect more broadly on the view that property law should facilitate the transition toward the circular economy.[189] A 'looser'[190] approach to property law concepts can serve as a catalyst for the circular economy but also raises questions about its potential consequences. The argument that the unity principle can be approached more leniently in the context of the retention of title clause because the autonomy of the good whose title is retained is inherently guaranteed by the fact that it was a separate movable good at the time when the contracting parties concluded the contract (thus before incorporation) prompts reflection on the broader implications of such an argument. If it is accepted in the context of the retention of title clause, there is no reason why it would not extend to the context of accession as a whole and impact the right of superficies as well. When parties create a right of superficies, the (inherent components of) the buildings and plantations that result from exercising that right are also movable. Referring back to the example of the photovoltaic roof tiles (supposedly insufficiently autonomous for a right of superficies) and the photovoltaic panels (supposedly sufficiently autonomous), both goods are movable when the right of superficies[191] is created which proves their 'autonomous existence' in the same manner as put forward by the authors. The argument shows that it might be necessary to develop a new understanding of the concept of an 'inherent component' altogether to support the transition towards a circular economy fully (a topic that will be explored in more detail below).

[187] See earlier footnote 104.

[188] J. VAN DE VOORDE, "De roerende natrekking in het Belgische goederenrecht: obstakel of hulpmiddel voor duurzaamheid?" in B. AKKERMANS et al. (eds.), *Privaatrecht 2050. De weg naar ecologische duurzaamheid*, Bruges, die Keure, 2022, (209) p. 228, no. 52.

[189] See in general: B. AKKERMANS, "Duurzaam goederenrecht: naar een herijking van ons goederenrechtelijk stelsel?", *TPR* 2018, p. 1437–1470.

[190] There are different ways to frame this approach. One could also call it 'more modern'.

[191] Note that the right of superficies and the result of the right (i.e., buildings and plantations) are to be distinguished from each other, see earlier footnote 114.

3.3.2.2 Dutch perspective

It is worthwhile to look across the border to the Dutch legal system because of an interesting provision in the draft Dutch Civil Code that has instigated a discussion in doctrine relevant to the question whether PaaS under retention of title is possible in Belgian law. That draft contained an article 3.1.1.3(3) with a similar effect as article 71 of the Belgian Pledge Act.[192] It stipulated that the seller of a movable good who has retained ownership of the good until full payment can prevent the sold good from becoming a component of an immovable good by registering the sales act containing the retention of title clause in a public register.

The explanatory memorandum to the draft explains that the article was limited to sales contracts because the need for protection of parties other than sellers is less urgent. Supposedly, it was a rare occurrence for items suitable for use as components of immovable goods to be leased or loaned.[193] However, the increased attention for business models such as PaaS demonstrates that such a position is no longer tenable today. But even during the parliamentary proceedings themselves a discussion unfolded regarding whether the Dutch article should be expanded to include all contractual relationships in which a good is handed over to someone else without intention that the good would become an inherent component of a good of the recipient (e.g., when the good is loaned, leased, or given into custody). The Commission for private and penal law of the House of Representatives argued in favor for that expansion[194] and a part of the Commission even suggested expanding it to include movable accession as well[195].

Government commissioner LANGEMEIJER argued against the expansion with the argument that expanding it to all situations where accession could take place would lead to great uncertainty, particularly for the creditors of the person to whom the principal object belongs (in a PaaS contract, this is the customer).[196] A mortgage holder, for example, could never be certain whether components like a heating system would fall under the mortgage right.[197] This is particularly the case if the mortgage right predates the replacement of an original component by a new item that is transferred under retention of title.[198] The provision would be the most undesirable with respect to goods that are difficult to materially remove from the principal good, such as bricks and roof tiles.[199] The theoretical expansion of the article even led the government commissioner to question whether the article should be omitted entirely, even in

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[192] "*De verkoper van een roerende zaak, die zich bij akte ondanks de levering de eigendom heeft voorbehouden totdat de koopprijs volledig is voldaan, kan, door de akte in de openbare registers te doen inschrijven, voorkomen dat de verkochte zaak vóór de betaling tot een bestanddeel van een bepaalde onroerende zaak wordt gemaakt.*"

[193] E.M. MEIJERS, *Ontwerp voor een nieuw Burgerlijk Wetboek - Toelichting (eerste gedeelte) (boek 1-4)*, The Hague, Staatsdrukkerij en uigeverijbedrijf, 1954, p. 163.

[194] C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 74.

[195] C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 79.

[196] C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 76 and 79-80.

[197] Also in Belgian law, the mortgage right extends to improvements mad to the immovable property (article 45(2) Mortgage act, *Belgian Official Journal* 22 December 1851).

[198] See on the conflict between the retention of title holder and the mortgagee under Belgian law: V. SAGAERT and J. DEL CORRAL*, Eigendomsvoorbehoud* in *APR*, Malines, Kluwer, 2015, p. 147–148, no. 225.

[199] See for a similar discussion on enforcement issues regarding the retention of title in Belgian law: V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 208-209, no. 30.

relation to sales contracts.[200] The government commissioner doubted whether the value of the retained title is actually that significant. An asset that is reclaimed might have little value if it is tailored to the immovable for which it was originally intended (for example, a heating system), while the depreciation of the building as a whole and, consequently, the disadvantage for the building owner and their creditors could be disproportionately large.[201] Finally, the government commissioner asserted that the inequality between creditors that would result from the provision would be unreasonable. The creditor whose prestation is easy to separate from the principal good (e.g., the heating system as result from the obligation to deliver and install a good) would be favored unreasonably when compared to those whose actions are not as easily separated (e.g., the paint as result from the obligation to paint interior walls; once the paint is applied and has dried up it is not possible to revindicate it as liquid paint that can be re-used in a manner that it can still create the same value).[202]

In the end, the article did not see the light of day. Dutch authors writing about the legal hurdles for the circular economy today raise the question whether the Dutch Civil Code should not be amended to include an article reminiscent of article 3.1.1.3. of the draft Dutch Civil Code that impedes the creation of components when a retention of title clause is registered in a public register.

VERHEUL dismisses the arguments of government commissioner LANGEMEIJER as follows.[203]

- First, how could a retained title lead to great uncertainty if it is registered in a public register?
- Second, why would it be unsatisfactory that a new component does not fall under old rights in security? Why should, for example, the mortgage holder benefit from the added value?[204]
- Third, why does the difference between creditors regarding the separability of the result of their actions in and of itself not justify a difference in treatment?[205]

Furthermore, VERHEUL is also critical for other authors' view that the removal of the provision benefits legal certainty and prevents loss of value. This author repeats that the publication of the retained title safeguards legal certainty. As regards the loss of value, the author stresses that individual components are also worth something (and – as remarked before in the context of the functional criterion – 'parts' gain even greater importance in a more circular economy).

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[200] C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 76 and 79-80.

[201] It should be stressed that this argument carries less weight in a more circular economy where the value of 'incorporated' goods is greater because they are designed to be more easily removed.

[202] C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 76 and 79-80.

[203] E.F. VERHEUL, "Eigendomsvoorbehoud, bestanddeelvorming en natrekking", *WPNR* 2015, (237) p. 242-243. See also E.F. VERHEUL and F.M.J. VERSTIJLEN, "Eigendom van roerende zaken, met name originaire wijzen van eigendomsverkrijging (titels 1 en 2). Een pleidooi voor meer continuïteit in het goederenrecht" in L. C. A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst*, The Hague, Sdu, 2016, (65) p. 92-96.

[204] This remark was also made by part of the Commission for private and penal law of the House of Representatives, see C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 79.

[205] This question was raised by part of the Commission for private and penal law of the House of Representatives as well, see C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 79.

All in all, VERHEUL asserts that Dutch law should allow that a retention of title clause impedes the creation of components and – at least temporarily – suspends the consequences of accession.[206] The author views it as reasonable that the interests of the seller prevail.

CHAO-DUIVIS expands on the arguments put forward by VERHEUL. The author writes that those arguments bring to light that there is a problem with the assumption that legal certainty is best served by the loss of property rights in favor of the property right resting on the 'larger' item. That assumption suggests that the owners of 'smaller' items should forfeit their rights. According to CHAO-DUIVIS, this contrasts sharply with the principle of equal entitlement of all citizens to the protection of their rights. This approach undermines the sense of justice inherent in the regulation of accession within the Dutch Civil Code. CHAO-DUIVIS agrees that it is reasonable to consider the 'interests' of the person who hands over a smaller item but critiques VERHEUL's reasoning for its lack of a solid foundation. In response and by way of offering such a foundation, CHAO-DUIVIS emphasizes two key points: (1) what truly merits protection is the right to property as enshrined in the Dutch Civil Code, and (2) this protection should not be framed as allowing the interests (i.e., right to property) of the owner of the smaller item to prevail. The protection does not inherently favor the owner of the smaller good's property right (in the context of PaaS: the service provider) over that of the owner of the larger good (in the context of PaaS: the customer); rather, both property rights should be considered equal, with each deserving equal protection under the law. CHAO-DUIVIS suggests that modern technology (e.g., digitalization) enables a more nuanced approach to dealing with accession. This approach can better balance and protect the property rights of all owners involved, ensuring justice and equity in cases where multiple property rights intersect.

In the same vein, MES *et al.*, identify legal uncertainty and the loss of value as the main objections in the arguments of the government commissioner and associated discussions.[207] They dismiss these objections in a manner that is similar to VERHEUL's reasoning. The authors are proponents of creating a statutory provision copying the draft article 3.1.1.3.

This discussion and the arguments put forward by Dutch authors will be useful in answering the question whether PaaS under retention of title could be used in a proper fashion under Belgian law.

3.3.3 Would the use of retention of title clauses in PaaS contracts be improper?

3.3.3.1 Security function of retention of title clauses

The previous section established compelling reasons for permitting PaaS contracts – as a type of non-translative contract – to include a retention of title clause, with clear legal arguments supporting this possibility. Consequently, one could argue that incorporating a retention of title clause in PaaS contracts serves legitimate *goals.* Nonetheless, the question arises whether such a clause is the correct *tool* to reach those goals. Is it an adequate instrument for making PaaS

[206] E.F. VERHEUL, "Eigendomsvoorbehoud, bestanddeelvorming en natrekking", *WPNR* 2015, (237) p. 244.
[207] A.J. MES et al., "Eigendom van onroerende zaken, met name natrekking (titels 1 en 3). Flexibele eigendomsverhoudingen in het vastgoedrecht" in L. C. A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst*, The Hague, Sdu, 2016, (145) p. 163-164.

contracts more attractive and, more broadly, for promoting the transition towards a circular economy?

In essence, service providers would wish to use the pledge register to make clear to the world that the product offered as a service remains theirs. The knowability of that intention would prevent both immovability by incorporation and immovable accession. However, the instrument employed (i.e., the retention of title clause) serves a particular security function. As SAGAERT wrote in 2017: "A retention of title clause is a guarantee mechanism that is intrinsic to the claim for payment of the purchase price: it can only cover that specific claim and no other claims. (…) The extension of the retention of title clauses to service contracts does not mean that an 'extended retention of title clause' is possible, i.e., a retention of title clause that guarantees other claims than those arising from the transaction in which the goods were delivered. Only the claim related to the delivery of the encumbered good and the associated services can fall under the coverage of the retention of title clause*. A fortiori*, a retention of title clause for all claims is unthinkable" (own translation).[208]

GRUYAERT has extensively researched the leeway for the introduction of an extended retention of title clause with opposability towards third parties in Belgian law.[209] Two key takeaways of GRUYAERT are that extension could be possible, but (1) not limitlessly (i.e., the retention of title clause should remain limited to claims that are sufficiently closely connected to the delivery of goods, and (2) provided that sufficient publicity be given to the clause via registration in the pledge register to safeguard the rights of third parties.[210] However, as things stand, an expanded view on retention of title clauses requires a revised interpretation of their functioning and of the Pledge Act.[211] The legislature has not purposefully and explicitly extended the security purpose of retention of title clauses. As mentioned earlier, it is possible to construct a statutory, grammatical argument that the Pledge Act is limited to translative contracts. Consequently, it could be argued that the Pledge Act limits the security function of retention of title clauses to securing the counter-prestation for the transfer of ownership.

3.3.3.2 Is a revised interpretation of the security function and the Pledge Act possible?

A change of course in case law and a revised interpretation of statutes is possible. SAGAERT offers an example of how views can change, writing in 2021 and 2023 how one could imagine introducing the 'fiduciary property for circularity purposes' in the context of retention of title clauses.[212] In general, social conventions can change.[213] Within the confines imposed by the legislative and executive branches, courts are tasked with finding solutions to questions of law

[208] V. SAGAERT, "Het eigendomsvoorbehoud (en retentierecht) onder de Pandwet" in M. E. STORME (ed.), *Roerende zekerheden na de Pandwet*, Antwerp, Intersentia, 2017, (29) p. 36, no. 17 and p. 37-38, no. 18. See also V. SAGAERT and J. DEL CORRAL, *Eigendomsvoorbehoud*, Malines, Wolters Kluwer, 2015, p. 64-65, no. 88 and p. 67, no. 92; D. GRUYAERT, "Het kredieteigendomsvoorbehoud", *TPR* 2016, (1205) p. 1208, no. 2.

[209] D. GRUYAERT, "Het kredieteigendomsvoorbehoud", *TPR* 2016, (1205) p. 83-124.

[210] D. GRUYAERT, "Het kredieteigendomsvoorbehoud", *TPR* 2016, (1205) p. 1226-1228, nos. 18-19 and p. 1230-1231, no. 21.

[211] D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Brussels, Larcier-Intersentia, 2022, (495) p. 530, no. 41.

[212] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1553, no. 15; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 204, no. 24.

[213] In general, the renewed property law in Book 3 of the Belgian Civil Code is meant to stimulate sustainability, see B. VERHEYE, "Duurzaamheid in boek 3 van het Burgerlijk Wetboek – Meer dan enkel windowdressing" in C. DECOCK et al. (eds.), *Let's go green*, Brussuls, Larcier-Intersentia, 2024, p. (9) 10-11, no. 2.

that are appropriate *hic et nunc* and can interpret and apply statutes in a teleological manner.[214] Over time, the preparatory parliamentary documents containing the *ratio legis*[215] of a statute (i.e., legislative intent) may lose their relevance.[216]

It is true that service providers could benefit from an extended retention of title clause. One could argue that, to promote PaaS contracts, it would be beneficial for the service provider to exercise the right to revindicate the product offered as a service against third parties[217] on the basis of a retention of title clause that covers, for example, the failure to pay for the maintenance or repair services of the product.

In general, there is no reason to fear that new approaches to property law would be entirely disruptive. The legal system has historically been able to adopt to evolutions and even revolutions, demonstrating its resilience and flexibility. Regarding the circular economy, it is important to remember that the 'transition' is, to some extent, a 'return' to traditional practices. The re-using, repurposing, and recycling of goods are as old as human civilization.[218] Even PSS and PaaS contracts are not entirely novel. They have existed for some time already, mostly in a business-to-business context, yet they are now gaining traction.

Still, the foregoing does not mean that courts *should* interpret the Pledge Act more broadly. It might be the case that the retention of title clause – meant to be a right in security – is improperly used. In Dutch legal doctrine the same concern has been raised regarding the right of superficies (i.e., in principle a right of use and enjoyment) as a right in security.[219]

3.3.3.3 Is a security function possible at all if non-translative use is accepted?

The starting point to answering the question whether the use of a retention of title clause would be improper is the question whether a retention of title clause could serve a security function

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[214] W. VAN GERVEN, *Beginselen van Belgisch privaatrecht (deel I) - Algemeen deel*, Antwerp, Standaard, 1969, p. 182, no. 69.

[215] The concept of 'the *ratio legis*' faces the same difficulties as the concept of 'the legislature' (see earlier footnote 50). That term means everything and nothing. Doctrinal literature uses *ratio legis* to indicate various things. The term can refer to the result that the legislature tries to achieve with the legal rule, the scope that the legislature gives to a legal rule, the concrete reason for a legal rule (e.g., a specific event), the subjective motives of specific members of the legislature (i.e., specific legislators), or... Some of those meanings of *ratio legis* are descriptive in nature, which means they aim to describe what 'the legislature actually thought and how it specifically shaped a legal rule. Others are normative in nature, which means they relate to what can be achieved with the legal rule and how it fits into the larger framework of the legal system. A normative attribution of a goal to a statute implies that an 'intention' is ascribed to the legislature (i.e., legislative intent) even if this does not necessarily appear directly from the letter of the statute. It is the normative dimension that allows for interpretation methods other than the grammatical.

[216] Opinion advocate general R. DE BOCK 10 November 2023, ECLI:NL:CRVB:2023:2086, no. 15.18 ("Waar het te begrijpen valt dat de rechter kort na de inwerkingtreding van nieuwe wettelijke bepalingen aanknoopt bij de parlementaire geschiedenis, is er geen steekhoudend argument om dat tot in lengte van jaren te doen." and no. 15.19 ("Deze uiteenzetting over de betekenis van de parlementaire geschiedenis is m.i. belangrijk, omdat duidelijk wordt waarom de rechter niet gebonden is aan een bepaalde toelichting van de regering. (…) Dit zijn omstandigheden waar de rechter oog voor moet hebben, maar uiteindelijk is het de rechter zélf die de argumenten moet wegen en de wet moet uitleggen en toepassen.").

[217] Note that in the internal contractual relationship between contracting parties an extended retention of title clause is possible, see above footnote 166.

[218] In an academic context, an easy example thereof is that bookbinders have often used waste material from broken and discarded books to make new ones. Fragments of rare books are sometimes found hiding in the binding of other books. In the context of property law, 'circular building' has been present throughout the ages. For example, 'spoliation' is the term referring to the re-using and repurposing of stonework from old buildings to build new buildings in antiquity. A famous example is the cisterna basilica in Istanbul, where the majority of the columns supporting the structure have been sourced from other buildings. Numerous examples of circular building materials are much more mundane.

[219] E.F. VERHEUL, "Eigendomsvoorbehoud, bestanddeelvorming en natrekking", *WPNR* 2015, (237) p. 241 with reference to W.H.M. REEHUIS and A.H.T. HEISTERKAMP, *Pitlo (deel 3) - Goederenrecht*, Deventer, Wolters Kluwer, 2012, p. 489, no. 668.

in a PaaS contract in any way. The answer thereto is fundamental, as REYNEBAU writes unequivocally: "Note: the retained title is and remains intrinsically is a right in security. This means that, absent security purpose, retention of title clauses are not possible (or that any use thereof in such cases is improper)" (own translation).[220]

This question has already been addressed in part as it, in essence, boils down to the discussion whether a retention of title clause is even possible in a non-translative contract at all. This has been touched upon earlier in the research report.

The authors who argue in that discussion that PaaS under retention of title should be (or even *is*) possible, do not put forward that a retained title is suitable for all PaaS contracts. SAGAERT and SAGAERT & DE SCHEPPER assert that while a retention of title clause is feasible in a non-translative contract, this possibility is restricted to instances where the service provider's ownership serves a purely collateral purpose (i.e., takes on a fiduciary nature) and, thus, remains an *intrinsic* right in security covering a claim that is directly related to the contractual relationship which has the collateral good as its object.[221] If service providers retain rights to use the installed infrastructure themselves, retention of title does not seem applicable.

This emphasis on the security purpose of the retained title can also be found in the works of GRUYAERT. The author points out that a retained title can presently only serve as collateral for the considerations that are sufficiently closely connected to the delivery of a good.[222] This begs the question whether a retention of title clause in a PaaS contract can have the customer's non-performance of service-related obligations (e.g., payment for maintenance and repair services) as its scope. GRUYAERT suggests that a relaxation of the Pledge Act's requirements could be beneficial for the uptake of PaaS contracts.[223] If the potential scope of retention of title clauses is expanded, third parties cannot argue against a claim of the service provider to revindicate the product offered as a service

One could argue that maintenance and repair services in PaaS contracts are sufficiently closely connected to the delivery of goods to justify such a relaxation. These services are arguably closely connected to the delivery of goods, as they ensure that the product remains suitable for the purpose for which it was solicited by the customer. In this sense, these obligations resemble the seller's duty to deliver a product that is fit for purpose in the translative sales contract.[224]

If that argument is accepted, the retained title could serve a security function that is similar in some regards to the more 'traditional' retention of title clauses in, for instance, a sales contract.

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[220] M. REYNEBEAU, "Heat-as-a-Service (HaaS): een illusie vanuit eigendomsperspectief?", *Tijdschrift voor Milieu- en Energierecht* 2024, p. (155) 168, no. 39.

[221] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1553, no. 15; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 204, no. 24.

[222] On the protection offered by retention of title clauses see extensively D. GRUYAERT, "Het kredieteigendomsvoorbehoud", *TPR* 2016, (1205) p. 83-124.

[223] D. GRUYAERT, "Privaat en publiek goederenrecht en duurzaamheid" in A. VAN HOE and G. CROISANT (eds.), *Recht en duurzaamheid*, Antwerp, Intersentia, 2022, (495) p. 529-530, no. 43.

[224] These obligations of seller and service provider have common characteristics. Historically, the adage *spondet peritiam artis et imperitia culpae adnumeratur* (own translation: the mastery of art is promised, and incompetence is attributed to fault) has been applicable to both sales contracts and contracts of enterprise (see R.J. POTHIER, *Traité du contrat de vente (tome I)*, Paris, Debure (l'aîné), 1762, p. 224, no. 213 (sales contracts); R.J. POTHIER, *Traité du contrat de louage (tome I)*, Paris, Debure (les frères), 1778, p. 377, no. 425 (contracts of enterprise)).

In a sales contract, the collateral (one patrimonial asset) is intended to secure a purchase price (a different patrimonial asset). The same holds true for the service-related obligations with an extended retention of title clause where the collateral (i.e., the product offered as a service) differs from the price that is due for services rendered.

3.3.3.4 Can retention of title clauses in PaaS contracts secure the right of revindication?

Despite the similarities, the potential security function of a retention of title clause in a sales contract differs in purpose from that of an extended retention of title clause in a PaaS contract. As previously discussed, the retention of title clause in a sales contract is not primarily intended to secure the right of ownership over the sold good itself but rather to safeguard its monetary value. Therefore, the seller's retained ownership is conditional. It is – in a sense – not a 'full' ownership, but merely an ownership for security purposes. Once the purchase price is paid, ownership transfers fully to the buyer. In contrast, in a PaaS contract, payments for services do not lead up to transferring ownership of the product offered as a service; full[225] ownership remains with the service provider throughout the contract.

Is it possible to secure the right of ownership of the product itself towards third parties with a retention of title clause, which would entail that the service provider would always be able to regain the factual possession of the product? At its core, that ability is what the PaaS service provider aims to achieve by avoiding statutory incorporation and accession by giving publicity to the retention of title clause via the pledge register. The primary claim that a service provider in a PaaS contract would wish to secure with an 'unconditional' retention of title clause registered in the pledge register is the obligation of the customer to return the product at the end of the contractual relationship.[226] That means that the good acting as collateral for the obligation to return the product as a service is simultaneously the object of that obligation itself. Framing the product offered as a service in a PaaS contract as a collateral for the obligation to return the product by the customer is a convoluted way of presenting the right of all owners to reclaim their goods from someone who factually detains the goods without legal right to do so, seeing how both the collateral and the secured asset are one and the same. That right of revindication is inherent to the right of ownership (article 3.51 CC), which is retained in this situation.[227] When customers no longer possess the right to detain and use the products offered as a service, they are to return them.

One could argue theoretically that this is no real 'security right' and that there would be in fact an improper use of the retention of title clause and its registration in the pledge register to safeguard the right of ownership in the eyes of third parties. With movable goods owners do not need this type of legal constructs to safeguard their right of ownership. No publicity is required for the opposability of the right of ownership towards third parties.[228] This principle is not extended to immovable goods, precisely because of the statutory incorporation and accession – and the reasons therefor, namely the protection of third parties – that the service provider would wish to impede by relying on the pledge register.

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[225] Of course the customer gains the right to use the product.

[226] There are several causes of extinction of a contractual relationship (see article 5.122 CC). The circumstances of the end of a contractual relationship can vary drastically. Contractual parties end a contractual relationship in good spirits if they mutually agree to end the relationship or if all obligations have been performed. However, a contractual relationship can also be dissolved by reason of non-performance.

[227] Regarding the right of revindication, see Cass. 3 May 1996, *Arr.Cass.* 1996, no. 145, (388) p. 394.

[228] M.E. STORME, "*Paritas creditorum*, voorrang en roerende zekerheden", *TPR* 2006, p. (939) 979, no. 64.

3.3.3.5 Should the pledge register be used as a means of publicity?

To break the tension caused by retention of title clauses that might not be seen as real rights in security one could put forward the position that the pledge register should be opened up to act as a public register for all 'property clauses' (of which retention of title clauses are a subset). As discussed above (see above title 7.3.1) a retention of title clause in a PaaS contract serves legitimate goals. While some may view it as an imperfect tool, this does not diminish the potential value of an alternative instrument that is able to impede statutory incorporation and accession in a similar manner. The primary purpose of the pledge register is to inform third parties of rights in security.[229] One of the main reasons for the unity principle, along with its effects, is to protect third-party legal certainty. The pledge register could be instrumental in facilitating this awareness.

A new function of the pledge register could be to mirror article 3.1.1.3. of the draft Dutch Civil Code that would have impeded the creation of components when such a property clause is registered in a public register (see above title 3.3.2.2). The normative arguments for such an expansion can be grounded in (1) the arguments put forward by Dutch authors in favor of that draft article in the Dutch Civil Code, which are all the more relevant in a circular economy in which 'components' of goods are expected to retain more value – and (2) the arguments of Belgian authors such as VERHEYE that as long as the legal certainty of third parties is guaranteed (by the expanded version of the public pledge register) it should be possible to impede the creation of components. Moreover, such an expansion would not contradict the current rationale of the pledge register. Third parties consult the register to assess the availability of a good for their own rights and its suitability as collateral for their claims. To make this assessment, they need to determine whether the good has already been encumbered with a property right in security by another party. It is only a small step from this current practice to extending the pledge register to cover situations where a good is unavailable due to a 'retained title' (i.e., a property clause), even if there is no security function (other than 'securing' the right of revindication). This would mean that the pledge register is opened up to allow the 'fiduciary property for circularity purposes', which would stand alongside the fiduciary ownership for management purposes and the fiduciary ownership for security purposes.[230]

The normative arguments against broadening the scope of the pledge register are those that can be raised in general against this business model, such as the need for vigilance against over-indebtedness of customers, in particular consumers, and loss of agency.[231]

From a more strictly legal point of view, one could contend that greater weight should be given to the classic rationale of the unity principle. One could question whether it is truly advisable to continue pursuing the creation of separate property status for goods that – at least visually –

[229] Explanatory memorandum to the draft act of 24 October 2012 to amend the Civil Code with regard to rights in security on movable goods and to repeal various provisions in this matter, *Parliamentary Documents* Chamber of Representatives 2012-2013, no. 53- 2463/001, p. 47.

[230] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1553, no. 15; V. SAGAERT and K. DE SCHEPPER, "Property law and circular economy" in E. TERRYN et al. (eds.), *Servitization and circular economy*, Brussels, Intersentia, 2023, (181) p. 204, no. 24.

[231] Regarding these issues in the context of property law, see, for example, R. KOOLHOVEN, "Gebouwen en hun bestanddelen in een meer circulair goederenrecht" in R. KOOLHOVEN et al. (eds.), *Circulair bouwen*, The Hague, Instituut voor Bouwrecht, 2018, (5) p. 53.

have been unified beyond the possibilities currently provided by the legislature. However, it is precisely this rationale that has been nuanced by Dutch and Belgian scholars.

Furthermore, one might argue against expanding the pledge register's scope, fearing it could dilute its core functions and reduce its legibility. These concerns are valid but are more practical than theoretical. They could be addressed with a pragmatic approach. In today's digital age, the potential to create a register that remains both clear and comprehensive has greatly increased. One could envision a platform integrating information from various databases (e.g., patrimonial databases, the pledge register, etc.) with an interface that allows users to view a digital cross-section of goods, revealing both the property status of individual components and any attached security right. This integrated platform would aim to enhance (1) product traceability, (2) the transparency of property rights, and (3) awareness of security interests. Those functions are in line with the current functions of the pledge register. In general, product traceability is gaining importance and is key to promoting the circular economy. For example, the European Union has created the possibility of demanding digital product passports for product groups with the new Ecodesign Regulation (movable goods).[232] Ongoing initiatives such as the digital 'Madaster platform' offer a preview of how public registers could inform third parties of the components of immovables with more granularity.[233]

[232] Regarding this regulation and the digital product passport, see our other research report on the lifespan extension of products. That report can be consulted at https://ce-center.vlaanderen-circulair.be/nl/publicaties/publicatie-2/31-lifespan-extension-of-products-european-and-national-initiatives.

[233] Madaster is a digital platform that registers materials and products used in buildings and assigns them a 'material passport'. This passport contains detailed information on the materials' quality, origin, and potential for reuse making it easier to track, reuse, and recycle building materials throughout a building's lifecycle.

4 Alternative legal solutions

4.1 Natural evolution of social conventions

An alternative to amending the Pledge Act (so as to open up the pledge register up to be a more general register for property clauses) is a baseline scenario with no legislative intervention and a natural evolution of social conventions on PaaS contracts. As mentioned before, it might be necessary to develop a new understanding of the concept of an 'inherent component' altogether to support fully the transition towards a circular economy. A changed perspective on the meaning of that concept is the most radical of alternative solutions as the creation of components is the foundation of other concepts such as accession.

As circular business models like PaaS gain traction, societal expectations may shift, recognizing that service providers retain ownership of the products offered as a service. Social conventions are a dynamic concept within private law.[234] Over time, society might no longer view goods as a singular unit, instead understanding that different owners can possess different components. This evolution could lead to the perception that products offered as a service are not inherent components of the customer's goods, thereby removing the need for legal constructs to avoid accession and immovability by incorporation. Both accession and immovability are predicated on the assumption that certain goods become inherent components of others, but changing social conventions may eventually render this assumption obsolete. If circular business models pick up speed, changing social conventions could make it 'common knowledge' that goods do not necessarily form a single unit and can be owned by different owners (which could lead to a duty to gather information). One concrete social convention that would need to change is the viewpoint that a central heating system (i.e., a 'network good', *supra*) is immovable by incorporation in its entirety because the removal of individual parts makes it non-functional.[235]

A similar change in social conventions has already taken place in the context of movable goods, where financial leasing is commonplace.[236] That type of leasing is essentially a form of long-term financing. The lessor allows the lessee to use a good (e.g., an electric bicycle or a battery pack for a self-owned electric bicycle) for a defined period in exchange for periodic payments. The lessee has the option (often at the end of the lease term) to purchase the asset, usually for a nominal price. Under this arrangement the economic ownership of the good is transferred to the lessee, while legal ownership is retained by the lessor until the lessee invokes the purchase option. The lessee merely has an instrumental, fiduciary ownership. In other words, the parties agree that the lessor retains the legal right of ownership not only for the duration of the contractual relationship but also afterwards, unless the lessee exercises the purchase option. Thus, creditors of the lessee are confronted with a good in the factual possession of their debtor that (partly; e.g., the self-owned electric bicycle with a battery pack that belongs to the lessor) belongs to another person. The lessor has the right to revindicate the good on the basis of the

[234] P. MEMELINK, *De verkeersopvatting*, Den Haag, BJu, 2009, p. 144- 148.
[235] *Supra* footnote 131.
[236] This evolution was not undisputed, see H. VANDENBERGHE, "Eigendomsvoorbehoud bij leasing", *RW* 1980-81, p. (2761) 2761-2768 and L. DE KEYSER, "Roerende leasing en eigendomsrevindicatie", *TPR* 1983, p. (443) 454, no. 8.

right of ownership, even against third parties.[237] The lessor is not obliged to give publicity to the lease.[238]

This alternative solution of reliance on the evolution of social conventions is a solution that was already proposed by government commissioner LANGEMEIJER when arguing against the inclusion of article 3.1.1.3.(3) of the draft Dutch Civil Code (see earlier title 3.3.2.2).[239] Several Dutch authors agree that if contracts containing retention of title clauses, clearly intended to prevent the creation of components, are concluded with sufficient frequency, such clauses should establish a social convention that grants them legal effect.[240] These Dutch authors all refer to the *Radio Holland* judgment in which the Dutch Supreme Court ruled that the use of certain contracts, on the basis of which certain goods are no longer considered inherent components, should be taken into account for the assessment of the relevant social conventions.[241] This way, greater emphasis is placed on party autonomy. Social conventions are also intrinsically evolutive: the evolution of or changes in technology may change the social conventions and the interpretation of 'inherent components' may change with it.[242] Also the fact that parties would register circular products in a registry, could have an impact on the interpretation of social conventions that circular products are no longer to be considered inherent components.[243]

Changing social conventions could evolve on a sectoral basis rather than generally. By this we mean that courts might gradually accept the absence of the creation of components for specific well-established PaaS contracts, but not necessarily extend this principle to all goods. For example, courts may find it easier to recognize that products in popular PaaS models such as lighting-as-a-service, mobility-as-a-service or energy-as-a-service are not inherent components. However, the statutory reliance on social conventions to dictate what is to be regarded as 'inherent component' is defined by its flexibility. It might very well be that in the future an increased popularity of PaaS leads to a general shift towards a new understanding of 'inherent component'. Increased design of goods in a modular and easy to disassemble fashion could spur

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[237] A. DE CALUWE and G. BOGAERT, "Eigendomsrecht en leasing", *RW* 1981-82, p. (2129), 2136, no. 7.

[238] M.E. STORME, "*Paritas creditorum*, voorrang en roerende zekerheden", *TPR* 2006, p. (939) 979, no. 64; D. GRUYAERT, *De exclusiviteit van het eigendomsrecht*, Antwerpen, Intersentia, 2016, nr. 387.

[239] C.J. ZEBEN et al., *Parlementaire Geschiedenis van het Nieuwe Burgerlijk Wetboek - Boek 3: Vermogensrecht in het algemeen*, Deventer, Wolters Kluwer, 1981, p. 77.

[240] See M.A.B. CHAO-DUIVIS, "Privaatrechtelijke aspecten van de circulaire economie in het bijzonder circulair bouwen (Deel II)", *TBR* 2017, afl. 154, (1032) 1038-1039; T. HARTLIEF, 'Het huis van de toekomst', *NJB* 2019/1429; R. KOOLHOVEN, "Gebouwen en hun bestanddelen in een meer circulair goederenrecht. Van een wegwerpeconomie naar een kringloop van hoogwaardige, modulaire producten die worden verdienstelijkt" in C.W BACKES, M.N. BOEVE en D.R. VERSTEEG, *Circulair bouwen. Preadviezen voor de Vereniging voor Bouwrecht*, (6) 33 en 45; R. KOOLHOVEN, 'Worden 'slimme' zaken in de circulaire economie ook nagetrokken?', *WPNR* 2018/7194, 402; E.E. MAATHUIS, "Privaatrechtelijke obstakels op weg naar een circulaire economie", *Actioma* 2022/3, (22) 28; A.J. MES, H.D. PLOEGER en B.A.M. JANSSEN, "Eigendom van onroerende zaken, met name natrekking (titels 1 en 3). Flexibele eigendomsverhoudingen in het vastgoedrecht", in L.C.A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst. Over vernieuwingen in het zakenrecht. KBN Preadviezen,* The Hague, SDU, 2016, (145) 164-166; W.M.H. REEHUIS, *Eigendomsvoorbehoud,* Deventer, Kluwer, 2013, 39; B.G.P. ROGMANS, *Verkeersopvattingen*, Deventer, Kluwer, 2007, 18; A.M. Schmidt, 'Diensten in de circulaire economie en enkele mogelijke privaatrechtelijke belemmeringen', *Milieu and Recht* 2017/120, afl. 9, par. 4.2; E.F. VERHEUL, "Eigendomsvoorbehoud, bestanddeelvorming en natrekking", *WPNR* 2015, (237) 239 and references made there; C.H.A. VAN OOSTRUM, "(On)zekerheden bij het financieren van het product-dienstmodel", *Onderneming en Financiering* 2020/01, (27) p. 44-45.

[241] HR 16 March 1979, *NJ* 1980/600 (Radio Holland).

[242] V. TWEEHUYSEN, *Het uniciteitsbeginsel in het goederenrecht*, Deventer, Kluwer, 2016, p. 232; P.J. VAN DER PLANK, *Natrekking door onroerende zaken*, Deventer, Kluwer, 2016, p. 123.

[243] R. AERTSEN et al., "Circulair bouwen. Hergebruik van bouwmaterialen en installaties bevorderen met een terugnamegarantie", *Nederlands Juristenblad* 2022, (265) p. 269.

such broader rethinking by continuously diminishing the importance of the material criterion for the creation of components and an increased significance of the functional criterion.

A more fundamental question is whether the PaaS concept will extend beyond products where the advantages of removing high upfront costs and offering flexible services outweigh the loss of ownership's traditional benefits, such as having full agency over the product and its constant availability. While PaaS has achieved some success in sectors like lighting, mobility, and energy, due to its clear value proposition, it remains to be seen whether this business model will thrive in other sectors where the connection to ownership is stronger or more valued by customers, e.g. roof-as-a-service, facade-as-a-service. If PaaS remains confined to its 'natural' sectoral contexts, then the changing social conventions regarding PaaS would be 'universal' in the sense that they encompass all sectors where it is prevalent.

The increased importance of the functional criterion in a circular economy exposes an interesting tension. The provisions on the creation of components in Book 3 of the Civil Code are the culmination of an evolution away from a strict and material understanding of the notion of 'immovable goods'. Initially, this notion was understood to simply encompass all goods physically connected to land and the buildings on it (except for goods so heavy that they cannot be moved, even if there is no material connection to the ground).[244] Over time, the functional criterion has expanded the concept of 'immovable goods'. Case law, for example, has regarded kitchen appliances as components because a modern home is not functional without them, demonstrating how broad the concept has become (*supra*).[245] However, the adoption of the PaaS business model might require the pendulum to swing back. If a modern home is understood as a 'circular' home – that is, a home viewed more as a collection of parts rather than an indivisible whole – then the removability and interchangeability of its contents might become essential features. While society may – and very likely: will – still consider a modern home incomplete without certain amenities once deemed luxuries (e.g., kitchen appliances in a fully furnished kitchen), it would come to accept that the specific amenities present are merely 'temporary placeholders'. These placeholders would be switched out more freely than they are today (for instance as a result of technical innovations leading to more energy-efficient alternatives and an obligation for the PaaS service provider in the PaaS contract to innovate[246]).

The issue with waiting for a natural evolution is that it creates a chicken-and-egg dilemma. The adoption of PaaS contracts may be hindered by legal uncertainty surrounding ownership rights. A significant amount of time must elapse before the social conventions shift definitively. This could result in a transitional period that generates legal uncertainty and ambiguity regarding the classification of objects as inherent components or not.[247] Service providers may be discouraged by having to rely on legal constructs whose availability and implications are unclear. Moreover, courts may struggle with elucidating that availability and consequences on the basis of social conventions, particularly in the light of constraints imposed by mandatory law and public policy. It should be noted that friction is created mostly by the questions

[244] V. SAGAERT, "Onroerendmaking door incorporatie: over het verschil tussen beweegbaarheid en verplaatsbaarheid" (annotation of Cass. 14 February 2008), *RW* 2008-09, p. (457) 457, no. 2.
[245] *Supra* footnote 43.
[246] Regarding this obligation to innovate, see the research report on PaaS model clauses of the CE Center available at '30. Model clauses for Product-as-a-Service (PaaS) contracts - Publicatie - CE Center'.
[247] T. HARTLIEF, "Het huis van de toekomst'" *NJB* 2019/1429; E.E. MAATHUIS, "Privaatrechtelijke obstakels op weg naar een circulaire economie", *Actioma* 2022/3, (22) p. 29; A.M. SCHMIDT, "Diensten in de circulaire economie en enkele mogelijke privaatrechtelijke belemmeringen", *Milieu and Recht* 2017, no. 4.2. See also K. SWINNEN*, Accessoriteit in het vermogensrecht,* Antwerp, Intersentia, 2014, p. 396, no. 388.

regarding opposability towards third parties. As mentioned before, the contracting parties have great freedom to regulate the ownership of the product offered as a service and can impede the creation of components based on that freedom. Thus, even though it is possible that there is uncertainty regarding the effects of PaaS contracts for third parties, social conventions can change already on the basis of the internal consequences of PaaS contracts for the contracting parties.

In any case, statutory intervention could help alleviate the friction. The need for such intervention should be evaluated in light of the normative arguments for and against it, as previously discussed, and the urgency of promoting PaaS through regulation to support the transition towards a circular economy (in the belief that PaaS effectively aids this transition). The benefit of evolving social conventions, though slower, is that they are market-driven, ensuring that legal developments align closely with changing societal needs.

4.2 *Ius tollendi*

In Dutch legal doctrine another legal concept has been put forward as a potential solution for PaaS contracts: inherent components that were added to the property in the course of a limited right of use in rem – such as a right of superficies (article 5:120 Dutch CC) [248], a long term lease right (article 5:99 Dutch CC)[249] or a right of usufruct (article 3:208 Dutch CC)[250] – can be claimed to be separated from the main good.[251] This separation right of the holder of a limited use right is also called a '*ius tollendi*'. If they are connected to a real use right, this *ius tollendi* is a part of this main right and thus opposable towards third parties, without violating the *numerus clausus* principle.[252] Exceptionally, the separation right of a lessor (article 7:216(1) Dutch CC), that is a personal use right, has *in rem* effect as well.[253] The fact that these separation rights, causing the separation of inherent components, are opposable towards third parties, like ordinary rights in

[248] Compare with article 3.184 CC. Rights on the volumes: "During the duration of his right, a right of superficies holder can exercise all prerogatives of an owner, within the limits of the rights grantor of the right of superficies and respecting existing rights on the ground. He cannot remove the constructions or plantations he was obligated to erect." *A contrario* this article, it can be deduced that a holder of a right of superficies can remove the constructions that he deliberately erected.

[249] Compare with article 3.172 CC. Rights on the immovable property: "(…) If a leaseholder receives or carries out construction or plantations works, whether or not he was obliged to, these are his property, as a result of article 3.182. He is not allowed to remove the constructions or plantations he was obliged to carry out." *A contrario* this article, it can be deduced that a holder of a right of superficies can remove the constructions or plantations that he was not obliged to carry out. This also follows from the previous article 7 of the old long-term lease right Act: "At the end of his right, he may remove any buildings or plants he has erected, which he was not obliged to do by virtue of the agreement, but he shall be obliged to compensate any damage caused to the land by such removal. Nevertheless, the owner of the land has the right to retain these objects until the leaseholder has paid him in full."

[250] Compare with article 3.160 Belgian CC. Accession and compensation: "The bare owner has to compensate the usufructuary, on the basis of unjust enrichment, for the constructions and plantations he has erected within the limits of his right, without being obliged to do so and with the consent of the bare owner. Until payment of this compensation, the usufructuary has a right of retention in respect of these constructions and plantations. The bare owner becomes the owner of these constructions and cannot request their removal. However, the usufructuary is entitled to remove those constructions and plantations in the course of his right. In all other cases, the bare owner acquires ownership of the constructions and plantations at the end of the right, without compensation and without prejudice to article 3.16, 4°."

[251] See extensively on the potential use of separation rights in a circular context: J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht,* Deventer, Wolters Kluwer, 2022, 380-419.

[252] J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht,* Deventer, Wolters Kluwer, 2022, 364.

[253] Under Belgian law, the lessee who erects a building on the leased land, obtains a right of superficies on this building (article 3.182 Belgian CC), that is opposable towards third parties without further publication in the public register (V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht,* Malines, Kluwer, 2021, 994, no. 1096).

rem, does not violate the unity principle, since the object of the separation right is the unity good as a whole.[254]

When the connection between inherent components is terminated by the separation right, the components become independent goods again and can once again be the objects of separate rights *in rem*.[255] The effects of the creation of components are thus canceled out. The main rule is that the owner of the unity good remains the owner of the separated (former) components.[256] However, if the separation is based on a *ius tollendi,* the original owner of the inherent component becomes the owner of the former inherent components after separation.[257] This means that, for example in case that holders of rights of superficies exercise their *iura tollendi*, after the separation of the components, the original owner of the building once again becomes the owner of the building. In this way, the separation right can reverse the undesirable consequences of immovable accession.

Based on this concept, the separation rights on the basis of a right of superficies and a long-term lease right have sparked interest in Dutch legal doctrine as a leeway for PaaS contracts. VAN DER PLANK and DE JONG have argued that, specifically in the context of facade-as-a-service[258], a long-term lease right can be created in favor of the lessor of the facade, who can, based on this right, claim the removal of buildings or plantations that have been deliberately erected, unless otherwise stipulated (article 5:89(3) Dutch CC). After the separation, the long-term lease holder becomes the owner of the separated components. The question rises, yet, whether the *ius tollendi* of the long-term lease holder also applies to necessary components of the building like its facade.[259] MEIJERS believed that the *ius tollendi* of the long-term lease holder could also apply to necessary structures.[260]

However, the object of a long term lease right is also bound by the unity principle, so that the use right can only be established on a building or structure that is sufficiently autonomous, but not on independent inherent components of a building, like for example the building's facade.[261] In contrast, the authors claim that the object of the long term lease right can be

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[254] See also earlier: O.K. BRAHN, *Toelevering van voorwerpen onder eigendomsvoorbehoud bij industriële fabricage, volgens huidig en komend recht,* Deventer, Kluwer, 1984, p. 11.

[255] J.B. SPATH*, Zaaksvervanging*, Deventer, Wolters Kluwer, 2010, no. 109-110; J.B. SPATH, "Afscheiding van bestanddelen en splitsing", *AA* 2004, 91-100; C. VON BAR, *Foundations of property law. Things as Objects of Property Rights*, Oxford, Oxford University Press, 2023, 306, no. 9.1. See in the same sense: K. SWINNEN, *Accessoriteit in het vermogensrecht*, Antwerp, Intersentia, 2014, 378, 370, B.

[256] S.E. BARTELS and A.A. VAN VELTEN, *Mr. C. Assers Handleiding tot de beoefening van het Nederlands Burgerlijk Recht. 5. Zakenrecht, Eigendom en beperkte rechten*, Deventer, Kluwer, 2017/80a; J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht,* Deventer, Wolters Kluwer, 2022, 338 with reference to J.E. WICHERS, *Natrekking, vermenging en zaaksvorming: opmerkingen bij de algemene regeling voor roerende zaken in het Burgerlijk Wetboek*, Deventer, Kluwer, 2002, p. 273 and 320; J.B. SPATH, "Afscheiding van bestanddelen en splitsing", *AA* 2004, p. 94. This is also the case in German law: See article §953 BGB.

[257] J.C.T.F. LOKIN, *Afscheiding van bestanddelen. Een studie naar Romeins, Duits en Nederlands burgerlijk recht,* Deventer, Wolters Kluwer, 2022, 373-375.

[258] On facade as a service see https://bouwen.vlaanderen-circulair.be/nl/projecten/detail-2/facadeclick-as-a-service

[259] The facade is a necessary component of a building: See E.C.A. VERMEULEN, *Circulair bouwen: knelpunten en oplossingen in het goederenrecht,* 2020, Nijmegen, Ars Aqui Libri, 2020, p. 42; F.J. VONCK, *GS Zakelijke rechten*, Deventer, Kluwer, 2020, art. 5:99, no. 2.

[260] E.M. MEIJERS, *Ontwerp voor een nieuw Burgerlijk Wetboek - Toelichting (tweede gedeelte) (boek 5)*, 's-Gravenhage, Staatsdrukkerij en uigeverijbedrijf, 1955, p. 308.

[261] This follows indirectly from article 5:85 Dutch CC. See S.E. BARTELS and A.A. VAN VELTEN, *Mr. C. Assers Handleiding tot de beoefening van het Nederlands Burgerlijk Recht. 5. Zakenrecht, Eigendom en beperkte rechten*, Deventer, Kluwer, 2017, no.

limited in three dimensions: the right of use and enjoyment of the right holder (article 5:89 Dutch CC), that is a part of the long term lease right , would be limited to inherent components of a building, like the facade.[262] In their advisory works, MES, PLOEGER and JANSSEN propose to amend article 5:89(1) Dutch CC so that a long term lease right can be limited to a specified volume that is sufficiently determinable, possibly with the addition of a 3D-drawing of the volume to the deed establishing the long term lease right.[263] This registration could also be done in the so-called 'Facade identification system' or 'Building Information Model' (BIM) or 'Madaster'.[264] Also in this view, the condition remains that the object of the long term lease right is sufficiently independent according to the (evolved) social conventions. A separate long term lease right on all kinds of building components therefore remains impossible.[265] Also under Belgian law, the long term lease right, like other rights in rem, remains subject to the unity principle, so the objects of the right need to be sufficiently autonomous.[266] In that respect, the creation of a long term lease right, along with the associated separation right of the right holder, does not offer any added value for the circular economy and PaaS.

To tackle the foregoing issues, VAN DER PLANK has proposed to create an new *ius tollendi* for the supplier of the inherent component, independent from other use rights, like a right of superficies or long term lease right.[267] In this way, accession is not disrupted, but the original owner of the inherent component can reclaim the component at the moment the building is dismantled and, if necessary, reuse it in the production process.[268] This separation right could also be published in the Madaster.[269] However, LOKIN has raised several objections to this proposal.[270] The first objection is dogmatic: separation rights based on existing use rights have in common that the right holder had a right in rem on the buildings or plantations. On the contrary, the *ius tollendi* in favor of the supplier does not guarantee that the supplier previously was the owner of the inherent component.[271] Secondly, the supplier can only reclaim the separation right at the moment the building is dismantled.[272] On the contrary, the holder of a separation right connected to an existing use right can claim the separation at any time. Thirdly,

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221; J.C.T.F LOKIN, *Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht*, Deventer, Wolters Kluwer, 2022, 399; N.C. STREEP, "De eigendom voorbij", *AA* 2018/07, (612) 617; E.C.A. VERMEULEN, *Circulair bouwen: knelpunten en oplossingen in het goederenrecht,* 2020, Nijmegen, Ars Aqui Libri, 2020, 40; F.J. VONCK, *De flexibiliteit van het recht van erfpacht,* The Hague, Boom Juridische uitgevers, 2013, 57-65.

[262] A.J. MES, "Goederenrechtelijke aspecten van circulair bouwen en slopen" in X., *Vastgoed en duurzaamheid*, Deventer, Kluwer, 2021, (37) 47; A.J. MES, H.D. PLOEGER EN B.A.M. JANSSEN, "Eigendom van onroerende zaken met name natrekking (titels1 en 3)" in L.C.A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst. KBN Preadviezen 2016*, Deventer, Kluwer, (145) with reference to A.J.H. PLEYSIER, "Vestiging beperkt recht op een gedeelte van een onroerende zaak?", *JBN* 2007/52, 3-5.

[263] A.J. MES, H.D. PLOEGER EN B.A.M. JANSSEN, "Eigendom van onroerende zaken met name natrekking (titels1 en 3)" in L.C.A. Verstappen (ed.), *Boek 5 BW van de toekomst. KBN Preadviezen 2016*, Deventer, Kluwer, (145) 176-177.

[264] C.H.A. VAN OOSTRUM, "(On)zekerheden bij het financieren van het product-dienstmodel", *Onderneming en Financiering* 2020/01, (27) 43. Zie ook Verenging van Metalen ramen en Gevelbranche (VMRG), Façades, 2018, 7 e.v. (FIS); R. SEBASTIAN *et al*., *Blauwdruk voor (juridische) afspraken voor samenwerking in projecten met BIM*, Rapport TNO 2013, 6 e.v.
For the Madaster see www.madaster.com

[265] A.J. MES, H.D. PLOEGER and B.A.M. JANSSEN, "Eigendom van onroerende zaken met name natrekking (titels1 en 3)" in L.C.A. VERSTAPPEN (ed.), *Boek 5 BW van de toekomst. KBN Preadviezen 2016*, Deventer, Kluwer, (145) 176.

[266] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) 1548, no. 9.

[267] See P.J. VAN DER PLANK, "Het bevorderen van circulair bouwen. Een alternatief voorstel", *TBR* 2019/89, 581-585.

[268] F.J. VONCK, *GS Zakelijke rechten*, Deventer, Kluwer, 2020, art. 5:20 BW, no. 1.6.1

[269] P.J. VAN DER PLANK, "Het bevorderen van circulair bouwen. Een alternatief voorstel", *TBR* 2019/89, (581) 584-585.

[270] See J.C.T.F LOKIN, *Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht* , Deventer, Wolters Kluwer, 2022, 405-406.

[271] J.C.T.F LOKIN, *Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht* , Deventer, Wolters Kluwer, 2022, 405.

[272] See P.J. VAN DER PLANK, "Het bevorderen van circulair bouwen. Een alternatief voorstel", *TBR* 2019/89, (581) 585.

LOKIN argues that the creation of a new separation right for the component supplier cannot only be relevant in a circular context, but should be extended. Therefore, he advocates the acknowledgment of a general separation right in Dutch law.[273]

Under Belgian law, TIMMERMANS briefly explores the relevance of a *ius tollendi* in a circular context.[274] In Belgian law, the holder of a right of superficies and a long-term lease right, as well as the lessee have a separation right regarding the buildings and plantations they have erected in the course of their use right. TIMMERMANS refers to VAN DER PLANK to argue that these right holders can reclaim these buildings and plantations on the basis of unjustified enrichment. However, as explained earlier, we are not convinced of the added value of this proposal, since these *iura tollendi* are connected to a limited use right and therefore are also bound by the limits of these rights. Therefore, the separation rights depending on the right of superficies and long-term lease right, are, like the main right, subject to the unity principle. Additionally, the costs of the notarial deed establishing the main use rights remain an issue.

Because of the several disadvantages or strict conditions associated with the (*ius tollendi* related to) the right of superficies, as a solution for usage-oriented PaaS, SAGAERT mentions the possibility to grant a free usage right (e.g., a loan) to the service provider on (parts of) the customer's immovable property for installing their system (e.g., photovoltaic panels).[275] Additional to this lease contract, the service provider and the customer would also conclude another lease agreement on the basis of which the service provider (lessor) leases the installations (e.g. photovoltaic panels) to the building owner (lessee), who would use and enjoy them during a certain period. Similarly, in Dutch legal doctrine, VAN DRUNEN and HOVING suggest, as an alternative to establishing a building right, renting the roof where photovoltaic panels are installed to the operator, specifically for the operation of photovoltaic panels by a third party on someone else's roof.[276] A benefit of this structure is that the service provider, as the lessee of the roof, automatically becomes the owner of the photovoltaic panels on the basis of an accessory building right (article 3.182 CC). Moreover, this accessory building right is not subject to additional publicity requirements, since it is inherently linked to the publicity of the main right.[277] Consequently, a building right that is accessory to, for example, a lease agreement for a period shorter than nine years, does not need to be registered in the land registry to be enforceable against third parties.[278] Additionally, transparency for third parties about the

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[273] See J.C.T.F LOKIN, *Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht* , Deventer, Wolters Kluwer, 2022, 420-433.

[274] R. TIMMERMANS, "Circulair bouwen, cascohuur, servitisatie, Madaster en afstand van bestanddeelvorming", *T.Huur* 2021, (106) 126.

[275] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, p. (1543) 1555, no. 18.

[276] M.M.G.B. VAN DRUNEN and I.C.J. HOVING, "Opstalloos financieren van dakprojecten voor zonnepanelen", WPNR 2022/7387, p. 689-698.
Also discussed by LOKIN: See J.C.T.F LOKIN, *Afscheiding van bestanddelen. Een situatie naar Romeins, Duits en Nederlands burgerlijk recht* , Deventer, Wolters Kluwer, 2022, 406-417.

[277] A. BROHEZ and L. BELLINCK, *Emphytéose et superficie* in *RPDB*, Brussel, Larcier, 2023, 172, no. 125; N. CARETTE and R. JANSEN, *Handboek goederenrecht*, Antwerp, Intersentia, 2022, 880, no. 1376; N. CARETTE, "Opstalrecht" in J. Baeck, N. Carette, A. WYLLEMAN, P. LECOCQ, M. MUYLLE and V. SAGAERT (eds.), *Het nieuwe goederenrecht*, Antwerp, Intersentia, 2021, p. 519; V. SAGAERT, *Goederenrecht* in *Beginselen van Belgisch privaatrecht*, Mechelen, Kluwer, 2021, p. 994, no. 1096; V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, p. (1543) 1555, no. 18.

[278] S. BOULY, *Onroerende natrekking en horizontale eigendomssplitsingen*, Antwerp, Intersentia, 2015, p. 319, no. 267; A. BROHEZ and L. BELLINCK, *Emphytéose et superficie,* in RPDB, Brussel, Larcier, 2023, p. 172, no. 125; F.L. ISTAS, "Réflexions sur le droit d'accession", *RNB* 1967, (270) 274.

existence of the accessory building right could be achieved by labeling the installation with the supplier's registration number, similar to leased vehicles.

This lease construction, combined with the accessory building right, is an interesting idea for PaaS. However, the question remains to what extent the object of an accessory building right is subject to the unity principle.[279] Insufficiently independent inherent components of a building, such as the building's bricks or photovoltaic roof tiles, cannot be the subject of an accessory building right.[280] The accessory building right can therefore only be an alternative to the independent building right or retention of title to the extent that the object of the accessory building right is sufficiently independent.[281]

[279] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1555-1556, no. 19.
[280] S. BOULY, "Verbeterings- en aanpassingswerken door de houder van een persoonlijk of beperkt zakelijk recht" in N. CARETTE and R. BARBAIX (eds.), *Tendensen Vermogensrecht 2016*, Antwerp, Intersentia, 2016, (215) p. 217-218, no. 5
[281] V. SAGAERT, "De zakenrechtelijke motoren van een circulaire vastgoedeconomie: een SWOT-analyse", *TPR* 2021, (1543) p. 1555-1556, no. 19.

5 Practical guidelines for PaaS service providers

Throughout this research report, it has been mentioned several times that the nature of PaaS contracts entails that the product offered as a service is likely designed to be as easy to remove as possible (e.g., through enhanced modularity). This ensures minimal material connections to the customer's good, reducing the risk of damage to either good upon removal. Consequently, it is less likely that the product would be considered as an inherent component of the customer's property under the material criterion. To put it boldly, the legal frictions addressed in this research report could be less pronounced in practice if PaaS service providers pursue easily removable designs for their products. However, the functional criterion is and remains all the more important, since the delivered products will often be considered 'essential' for the functionality of the immovable good.

This section offers some practical guidelines on how to mitigate the risk of the creation of components based on the interpretation of case law. It should be noted that, as the creation of components is a factual issue, courts have great freedom in their rulings. An overview of case law can offer some guidance on common threads but cannot dispel all doubts regarding the qualification of products as components.[282] Given the extensive reach of the recent property law reform, it is also wise not to take older case law as gospel today, as Bernard et al. warn.[283] However, at the same time, the reform builds upon established principles and is more of an evolution than a revolution.

Regarding the case law that underpins the guidelines, it is important to note that some of the cited rulings were issued in the context of qualifying goods as 'immovable by purpose.' As mentioned before, this classification requires that the same person owns both the naturally immovable good and its accessory. The criteria for deeming a good immovable by purpose differ from those for immovability by incorporation. For instance, while the functional criterion for immovability by incorporation requires 'essentiality,' 'usefulness' is sufficient for immovability by purpose.[284] Nevertheless, these rulings are relevant because this category of immovable goods is only really considered if the goods are not already deemed immovable for another reason (e.g., immovable by incorporation based on the material or functional criterion). Therefore, these rulings offer insights into what courts (implicitly) do not consider a sufficiently strong material connection to regard any good as incorporated, leading them to assess whether the good at issue qualify as immovable by purpose.

The guidelines focus primarily on the material criterion for the creation of components. As for the functional criterion, it is less straightforward to provide practical guidelines. It is up to the courts to decide what they deem 'essential' for the functionality of an immovable good. This

[282] See similarly E. STASSIJNS, "Annotation of Ghent 12 March 1991", *T.Vred.* 1991, p. (214) 215.
[283] N. BERNARD, P.-Y. ERNEUX, B. PIRLET and M. VAN MOLLE, "Nouveau droit des biens : jusqu'où iras-tu, composante inhérente ? ", *JT* 2023, 470, no. 13.
[284] N. BERNARD, P.-Y. ERNEUX, B. PIRLET and M. VAN MOLLE, "Nouveau droit des biens : jusqu'où iras-tu, composante inhérente ? ", *JT* 2023, 469-470, no. 13.

assessment is based on their understanding of social conventions ('*verkeersopvattingen*'), which are not easily influenced by a single service provider.

A first practical guideline that can be inferred from case law is to develop products that require no to minimal mounting materials and to ensure that the mounting materials allow for easy removal. Concretely, it is better to use screws and bolts, which can be unscrewed and undone, than nails and glue, which require forceful removal or impede the separation of parts.

- Kitchen appliances that are stable by themselves, are easily removed or replaced, and do not need to be affixed, are not considered incorporated. A connection to utilities (i.e., electricity, water, and gas) is not, in and of itself, sufficient to classify them as incorporated.[285] The same applies to a central heating system connected to a gas and water pipe[286] and an electrical switchboard connected to power lines[287]. The same even holds true for machines in a laundromat that are connected to a network of pipes that supply them with steam.[288]
    - As an illustration of the casuistry involved in an overview of case law: the incorporation of sinks, a pump unit, and a water softener can be inferred from the mere connection to the plumbing.[289]
- A refrigerator affixed with two screws, a wardrobe affixed on one side with six screws, and bathroom appliances affixed with only one screw cannot be regarded as incorporated, as these are easily removable or replaceable and no damage is done upon their removal.[290] In the same sense, built-in radiator cabinets, bathroom cabinets with integrated plumbing and lighting, and wall cabinets remain movable, as the court deems them easily removable.[291] Only if these cabinets would complete the building or contribute to its utility, taking into account what is currently required by modern standards to make a building 'habitable,' would be, according to the court, sufficient for their incorporation as immovable property.[292]
    - As an illustration of the casuistry involved in an overview of case law: kitchen appliances that have been screwed, bolted, or clamped are incorporated as damage is done upon their removal.[293]
- Kitchen cabinets affixed with mounting brackets, glue and nails are incorporated.[294]

A second practical guideline is to ensure that removal of the product offered as a service does not require a (significant) adaptation of the good of the customer.

[285] Ghent 12 September 2006, *TGR* 2007, p. 200.
[286] Court of first instance Huy 26 May 1954, *Jur. Liège* 1954-55, p. 6. See also under French law, Cass.fr. 1 December 1944, *Recueil Sirey* 1945, I, p. 47. This should not be confused with the fact that, according to social conventions, a central heating system as such is an interconnected system ('network good'), where the central heater and individual heating units (e.g., radiators) are linked by a network of pipes (*supra*) and is thus immovable as a whole.
[287] Mons 23 November 1993, *JLMB* 1994, p. (767) 770-771.
[288] Court of first instance Liège 15 June 2009, *FJF* 2010, p. (1099) 1103.
[289] Mons 13 June 1986, *JLMB* 1987, p. (1175) 1177.
[290] Brussels 22 February 2006, *Res Jur.Imm.* 2006, p. (285) 290, no. 17, p.291, no. 20 and p.292, no. 23.
[291] Ghent 14 December 1994, *FJF* 1995, 238.
[292] Ghent 14 December 1994, *FJF* 1995, 238.
[293] Ghent 12 March 1991, *T.Vred.* 1991, p. (212) 213-214. See also the description of justice of peace Asse 6 November 1998, *De Fiscale Koerier* 1998, (562) 562 (keep in mind that this description may not accurately reflect the court's reasoning).
[294] Ghent 12 March 1991, *T.Vred.* 1991, p. (212) 213-214.

- For example, a car wash installation that is bolted down to the floor is theoretically movable. However, if dismantling it requires significant effort and would damage part of the installation, it is considered an immovable good.[295]
    - As an illustration of the casuistry involved in an overview of case law: a chimney or other type of vent, connected to the building's roof structure and whose removal would necessitate partial roofing renewal, is not considered immovable. In this case, the court does not take into account that that removal without damage is impossible. Moreover, it rules that the system connected to the chimney can function independently and could be useful in other businesses. Therefore, the system qualifies only as immovable by destination.[296]
- A safe is not immovable solely because it cannot fit through the door opening of the room in which it is placed. The temporary and non-invasive removal of the door – which creates enough space – cannot be regarded as 'damage'.[297]
- A heating device is that is only connected to the chimney and water pipes in a building by simple screws is not considered immovable, as no damage occurs during its removal[298] However, it should be noted that heating devices are often considered as immovable under the functional criterion.[299]

A third practical guideline is to promote modular design. The product should be designed in a way that allows specific parts of the product or parts of the larger system to which it belongs, to be removed without causing damage to the remaining elements.

A fourth practical guideline for PaaS service providers is to label the product offered as a service, clearly indicating that its ownership status differs from that of the customer's property.[300] While this guideline has little direct impact on the qualification of the product as an inherent component—particularly in the eyes of third parties and with regard to the material criterion – this suggestion remains valuable. If such labels become widely used, they could help shift social conventions over time. In any case, labels can serve other functions in property law.[301]

[295] Court of first instance Leuven 4 February 1997, *TBBR* 1998, p. (151) 151.
[296] Vred. Roeselare 22 June 2000, *T.Vred.* 2002, p. (226) 229-230, no. 12.
[297] Ghent 28 March 2019, *T.Verz.* 2019, p. 462.
[298] Court of first instance Huy 26 May 1954, *Jur. Liège* 1954-55, p. 6 (see also *supra*).
[299] Ghent 10 november 2003, *TBH* 2004/4, 405-407. See also N. BERNARD, P.-Y. ERNEUX, B. PRILET & M. VAN MOLLE, JT 2023/28, nr. 6950, (465) 469, nr. 10
[300] H. SLACHMUYLDERS, B. KEIRSBILCK, E. TERRYN and E. VAN GOOL, "Duurzaam ondernemen en het recht: circulaire bedrijfsmodellen - juridische knelpunten" in IBJ/IJE (ed.), *De rol van de bedrijfsjurist in de duurzame ontwikkeling van de onderneming*, Brussels, Larcier, 2020, p. (7) 34, no. 37 with reference to B. VERHEYE, "Toekomst van de circulaire vastgoedeconomie", *TPR* 2019, p. (107) 183, no. 51.
[301] As the service provider loses the physical possession of the product, the label can help to protect against acquisitive prescription (articles 3.26 and following CC) and against a (good faith) possessor invoking the probative function of physical possession (articles 3.23 and 3.24 CC). For more information, see the research report on PaaS model clauses of the CE Center available at '30. Model clauses for Product-as-a-Service (PaaS) contracts - Publicatie - CE Center'.

6 Conclusion

Under current property law, there is no readily available answer to the question how in the context of PaaS contracts the service provider's ownership of a good can be protected in case the good becomes incorporated into — and thus an inherent component of — a principal good owned by the customer. The broad interpretation of the concepts of 'incorporation' and 'inherent component', and the associated effects of (immovable) incorporation, result in an automatic, unintended transfer of ownership from the service provider to the customer, in particular in the eyes of third parties. Moreover, this broad interpretation limits the creation of distinct property rights on inherent components (e.g., rights of superficies). The unity principle in property law limits property rights to sufficiently independent goods only. The underlying reasons for this principle include legal certainty and third-party protection.

However, the unity principle does not prevent a retention of title clause from retaining effect on incorporated goods under Belgian law (article 71 of the Pledge Act). The Pledge Act allows the creation of a property status of the incorporated good that is separate from the principal good. This exception to the unity principle requires that the retention of title clause is registered in the pledge register. The publicity provided by such registration is regarded as a sufficient safeguard for legal certainty and third-party protection. However, there are potential challenges in applying a retention of title clause to PaaS contracts. Specifically, it remains unclear whether a retention of title clause can be included in pure service contracts —where there is no intention whatsoever to transfer ownership — and whether all obligations in PaaS contracts, such as maintenance obligations, can be covered by such a clause (i.e., an extended retention of title clause).

The retention of title clause is by its nature meant to act as a security right, i.e. the right to claim back the good in case the price is not fully paid in due time. Traditionally, the retained title acts as a collateral (one patrimonial asset) intended to secure a purchase price (a different patrimonial asset). Even regarding an extended retention of title clause, it is possible to argue that the collateral differs from the price that is due for services rendered. It can be questioned whether a retention of title clause in a PaaS contract meant solely to hinder the creation of components and incorporation can be regarded as such a security right. At its core, the ability to regain the factual possession of the product at all times is what the PaaS service provider aims to achieve by avoiding statutory incorporation and accession by giving publicity to the retention of title clause via the pledge register. The primary claim that a service provider in a PaaS contract would wish to secure with an 'unconditional' retention of title clause registered in the pledge register is the obligation of the customer to return the product at the end of the contractual relationship, and not (merely) in case of non-performance. However, framing the product offered as a service in a PaaS contract as a collateral for the obligation to return the product by customer is a convoluted way of presenting the right of all owners to reclaim their goods from someone who factually detains the goods without legal right to do so, seeing how both the collateral and the secured asset are one and the same. That right of revindication is inherent to the right of ownership (article 3.51 CC), which is retained by the service provider. If the contractual relationship between the service provider and the customer has ended, the customer no longer possesses the right to detain and use the product offered as a service and has the contractual obligation to return the goods to the service provider.

In this research report we have tried to answer whether the current legal framework is in need of statutory intervention. As explained above, some major legal obstacles have been detected in legal doctrine for PaaS contracts to become legally operative from a property law perspective, (i) with regard to the unity principle and the principle of accession, on the one hand, and (ii) with regard to the difficulties that come along with the legal exceptions to these principles, like the right of superficies and the retention of title clause, on the other hand. As for the latter, both property concepts are essentially not entirely suitable for product-service purposes.

This is why in this rapport we also made some normative recommendations for potential legislative amendments in the future in order to create a more circularity-proof property law. As mentioned, the abolishment of the unity principle is – for us – not at stake, given the justified reasons of existence of the principle (*supra*). Nor is an amendment of Book 3 of the Civil code, including the legal provisions on the interpretation of inherent components (article 3.8,§ CC) and the superficies right (article 3.177 and following), desirable, considering the recent reform of this legislation and the fundamental nature of property law.

However, within the broader framework of the civil code reform, a reform commission was appointed to develop a legislative proposal to review the federal legislation on personal securities, real securities, including the retention of title, and mortgage law.[302] Consequently, the law on the retention of title clause is currently up to discussion. In the light of these legislative developments and the importance of the retention of title as legal solution for product-service systems, one could advocate for the introduction of a so-called 'fiduciary property for circularity purposes' in the Pledge Act as an explicit statutory exception to the unity principle. This fiduciary property right could ensure that the service provider should be able to revindicate his circular product, even if this has become an inherent component of another good, without infringing on the legal nature of the retention of title as a security right.

Although the introduction of a fiduciary property right for circularity purposes would be a major step in creating a secure legal framework for PaaS contracts, some concerns exist.

- First, it should be clear that any amendment to the Pledge Act with regard to fiduciary property cannot infringe upon the closed system of property rights (the so-called '*numerus clausus'*-principle). This implies that the fiduciary property right can be developed in the realm of the current ownership right (article 3.50 CC) or the retention of title (under the Pledge Act) or the legislature has to create an explicit 'fiduciary ownership for circularity purposes' as a new real right.
- Second, the creation of a circular fiduciary property right should not be used to circumvent the right of superficies, which remains the appropriate mechanism to safeguard the producer's ownership rights, for example in the case of leased photovoltaic panels. Moreover, the right of superficies continues to be the appropriate and established method for real estate publicity for deviations from immovable accession in the Belgian publicity system.
- Third, it remains an open question in which register this circular fiduciary property right should be published. Given its nature, it could be published in the Pledge register, like the ordinary retention of title. This way, the low costs and the rapid turnaround time

[302] Draft Bill of 7 February 2024 containing Title 1, "Personal Securities" of Book 9 "Securities" of the Civil Code, *Parliamentary Documents* Chamber of Representatives 2023-2024, no. 55-3825/001,

remains advantageous. However, given their similar functions, it would also be an option to require publication in the mortgage registers, like the right of superficies. In that case, the former advantages are replaced by higher costs (because of the necessary notary deed) and longer duration, but also greater legal certainty for third parties, as the mortgage registration is still the established publication method in Belgian law (*supra*). Additionally, it could be considered to publish the circular fiduciary property right in an alternative material register, where technical and legal information, including the ownership status, of all materials that are used in a building are gathered.

- Lastly, as already mentioned the amendment of the Pledge Act is of course a competence of the federal legislature. The Flemish institutions, therefore, can only provide comments and recommendations, as they hold no legislative authority in this matter.

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