

“DATA PROPERTY”: ENTITLEMENTS BETWEEN “OWNERSHIP”, FACTUAL CONTROL AND ACCESS TO COMMONS

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1 TECHNOLOGY, FLUIDITY AND SJEF

Sjef is an inspirer; no-one catches the attention of students and colleagues like him. He picks up topics which are “in the air” and no-one fully grasps yet. His strength is to provide language and structure to unresolved issues. I got to know him in 2001 when we met subsequently at two different spots, first in Trento (discussing Comparative Intellectual Property Law), shortly afterwards in Bremen (where he taught Comparative Property Law at the Hanse Law School). We are in touch since then.

This article aims to give something back. When writing about data, I am aware that the endeavour is doomed to fail: He is the master of thinking about data.¹ He writes in 2019.²

“If land registries would start to register, next to traditional data about immovables or valuable movables such as ships and aircraft, what might be

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- 1 S. van Erp, ‘Data protection in hybrid worlds’, in L. A. DiMatteo/M. Cannarsa/C. Poncibò (Eds.), *The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms*, Cambridge, Cambridge University Press, 2020a, pp. 233-239; S. van Erp, ‘Who “Owns” the Data in a Coronavirus Tracing (And/or Tracking) App?’, in: E. Hondius/M. S. Silva/A. Nicolussi/P. S. Coderch/C. Wendehorst/F. Zoll (Eds.), *Coronavirus and the Law in Europe, Examining coronavirus-related legislation and its consequences in European states*, IntersentiaOnline, 2020b, preprint available at <https://ssrn.com/abstract=3678095> (last accessed 11 September 2020); S. van Erp, ‘Digital Revolution. New challenges for law: Final remarks’, in A. De Franceschi/R. Schulze (Eds.), *Digital Revolution: New Challenges for Law*, Baden-Baden, Nomos, 2019, pp. 341-343; S. van Erp, ‘Ownership of data and the numerus clausus of legal objects’, in S. Murphy/P. Kenna (Eds.), *eConveyancing and title registration in Ireland*, Dublin, Clarus Press, 2019, pp. 125-140.
- 2 S. van Erp, ‘The need for a common vocabulary on “data ownership”’, 8 *European Property Law Journal* 2019, pp. 1-3.

called “data passports” (i.e. land data unrelated to traditional land registration), who is then the “owner” of the passport? Or would “ownership” differ depending upon the data source (satellites, sensors in farming equipment, mobile phones), type of data (land quality, geo-spatial) and purpose (data gathering in the general interest or “precision farming”)? It is vital that we start thinking about these new types of “ownership” or “entitlement”. Or should we perhaps start thinking about new types of “possession”? The answers may very well be different based on (a) area of law (private law, public law), (b) type of object (tangible, intangible, digital), (c) purpose (full control, security, management), (d) nature of the data carrier (physical, human), (e) distance of data from a subject (“dispossession” by mass processing). At least a cross-linguistic common vocabulary is badly needed.”

Sjef teaches property as a matrix, a metaphor for claims of assignment and protection, fragmented, proceduralised, sector adapted, but based on normative principles. He never got weary to emphasize that property is an institution which promises stability, while at the same time explaining that it is a legal institution under continuous change,³ required to address contemporary problems and in need for procedural approaches.⁴

3 S. van Erp, ‘Fluidity of ownership and the tragedy of hierarchy. A sign of a revolutionary evolution?’, 4 *European Property Law Journal* 2015, pp. 56-80; S. van Erp, ‘Contract and property law: distinct, but not separate’, 2 *European Property Law Journal* 2013, pp. 240-259, he explains that novel property rights emerge on the continuum of property and contracts.

4 Often referring to the works of his dear friend André van der Walt, see van Erp, 2015, *supra* note 3.

At the time of writing the hot phase of public debate about “data ownership” is over.⁵ The debate has shifted to “data rights”,⁶ summarised under the term “access”.⁷ Even if some policy areas stick to the term “ownership” (with or without quotation marks⁸), a broader

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- 5 It saw its peak in about 2016/2017 with various expert working groups on the national and the EU level. The European Commission’s White Paper stands out: ‘Towards a European Data Space’, COM(2018) 232 final, 25 April 2018; aligned with OECD, ‘Maximising the Economic and Social Value of Data’, DSTI/CDEP(2016) 4, 28 October 2016. Exemplary for the national debates: e.g. Germany: F. Faust, *Gutachten A zum 71. Deutschen Juristentag. Digitale Wirtschaft – Analoges Recht – Braucht das BGB ein Update?*, München, C. H. Beck, 2016; Interministerielle Arbeitsgruppe ‘Digitaler Neustart’ der Justizministerien, final report available at www.justiz.nrw.de/JM/schwerpunkte/digitaler_neustart/zt_bericht_arbeitsgruppe/bericht_ag_dig_neustart.pdf (last accessed 11 September 2020); and UK: Royal Society, *Data Ownership, rights and controls: Reaching a common understanding*, Report of Seminar Contributions of 3 October 2018, available at <https://royalsociety.org/-/media/policy/projects/data-governance/data-ownership-rights-and-controls-October-2018.pdf> (last accessed 11 September 2020). The shifting tone is summarized by European Commission, *Synopsis Report of the Consultation on the ‘Building of a European Data Economy’ Initiative*, available at https://ec.europa.eu/information_society/newsroom/image/document/2017-36/synopsis_report_-_data_economy_A0EFA8E0-AED3-1E29-C8DE049035581517_46646.pdf (last accessed 11 September 2020); further expert groups are listed by H. Ullrich, ‘Technology protection and competition policy for the information economy. From property rights for competition to competition without proper rights?’, *Max Planck Institute for Innovation & Competition Research Paper Series*, No. 19-12, 2019, p. 24, notes 72 and 73; for further international arenas see J. Ritter/A. Mayer, ‘Regulating Data as Property: A New Construct for Moving Forward’, 16 *Duke Law and Technology Review* 2018, pp. 238, 265.
- 6 On the differentiation between ‘data ownership’ (exclusive exploitation right) and ‘data rights’ (emerging from a ‘dynamic special relationship’, the original says: ‘Dynamische Sonderbeziehung’) and granting rights of say and participation (German: Mitsprache- und Teilhaberechte) operationalized by a recognized third party effect of (bilateral) data transfer agreements with explicit reference to the model of Art. 4 sec. 4 Dir. 2016/943 (transposed to German law in 2019, § 3 Abs. 3 GeschGehG), see The German Data Ethics Commission (GEK, installed in Sept. 2018) issued its final report in October 2019, available at www.bmi.bund.de/SharedDocs/downloads/DE/publikationen/themen/it-digitalpolitik/gutachten-datenethikkommission.pdf?__blob=publicationFile&v=6 (last accessed 11 September 2020), pp. 85, 104, 144 (referenced to Preliminary Drafts No. 2 (February 2019) und No. 3 (October 2019) of the ALI-ELI Principles for a Data Economy, available at www.europeanlawinstitute.eu/projects-publications/current-projects-feasibility-studies-and-other-activities/current-projects/data-economy/ [last accessed 11 September 2020]). The envisioned goal are “distributed property rights” (in the German text version: “verteiltes Eigentum” – for German law a novel concept) encapsulated as a right to injunction and damages against a third party for acquisition, use and transfer if the person knew or could have known that the person from who the third party acquired the data used and transferred the data unlawfully.
- 7 Which encompasses two directions: First, the debate about industrial ‘re-use’, see Ullrich, 2019, *supra* note 5, p. 21: “[...] the problem of the data economy is not so much an insufficient production of data, but an insufficient dissemination of data (complementary, improving, diversifying or even displacing) follow-on innovation in the digital economy. The catch-word is trading with and sharing of digital data, i.e. access rights, not rights of protection.” Second, the debate around the shift towards the term “Datenbesitz” (which signals a title ‘less than’ or burdening ownership), T. Hoeren, ‘Datenbesitz statt Dateneigentum’, *Multimedia und Recht* 2019, pp. 5-8.
- 8 The term is employed in the agricultural sector. With quotation marks: European Commission, *EU Code of Conduct on agricultural data sharing by contract agreement*, April 2018, available at https://copa-cogeca.eu/img/user/files/EU%20CODE/EU_Code_2018_web_version.pdf; without quotation marks: American Farm Bureau Federation, *US Privacy and Security Principles for Farm Data*, April 2016, available at <https://www.fb.org/issues/innovation/data-privacy/privacy-and-security-principles-for-farm-data> (last accessed 5 July 2020). Yet, ‘classical’ full ownership in the legal sense is not meant.

societal reflection has taken up momentum.⁹ Being an ELI-member himself,¹⁰ Sjef abandoned the technical term “ownership”, and moved on to reflect fragmented entitlements (“belonging”¹¹) and the underlying reasons. He holds on to the need to conceptualise data: “Data does not come into existence because we can show an end-user license agreement.”¹² This statement responds to two groups, on the one side to those who relegate data simply to contracts,¹³ and on the other side to those who call for concepts which conceptualise data as novel input factor,¹⁴ beside of labour and capital. Assuming that the developments will be propelled by the judiciary, Sjef calls for principles of entitlements with regard to data, as the novel category beside of movables, land, claims and creative expressions.¹⁵ In the tradition of Hohfeld, he conceives singular, but conjugal rights to process, to retrieve, to use, to manage. This fundamental work is ongoing and the current article will not interfere, but only modestly aims to contribute some reflections from the IP and competition law perspective.¹⁶

9 Reflected by ethic committees (for the German DEK *id.*; for the European High Level Expert Group on AI which presented a consolidated version of ‘Ethics Guidelines for Trustworthy Artificial Intelligence’ on 8 April 2019, see <https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai> [last accessed 11 September 2020]), numerous conferences (e.g. ASCOLA, 25-27 June 2020), research projects (GOAL, discussed at a GOAL-Summer School 23-24 June 2020), and court decisions (inter alia BGH, KVR 69/19, decision of 23.6.2020 – *Facebook* [The Federal German Supreme Civil Court upheld the injunction of the German Antitrust Agency against Facebook to oblige users to convey internet use data which is independent from the use of the platform itself and which precludes any user choice]).

10 Sjef is a founding member of the European Law Institute (ELI) and currently involved in two of its projects. He chairs the project “Blockchain Technology and Smart Contracts”, and is member of the Advisory Committee of the joint ELI and American Law Institute project “Principles for a Data Economy”. ELI’s mission is to ‘improve the quality of European law, understood in the broadest sense. It seeks to initiate, conduct and facilitate research, to make recommendations, and to provide practical guidance in the field of European legal development.’ <https://www.europeanlawinstitute.eu/about-eli/> (last accessed 7 December 2020).

11 Van Erp, 2020b, *supra* note 1.

12 S. van Erp, ‘Management as Ownership of Data’, in S. Lohsse/R. Schulze/D. Staudenmayer (Eds.), *Data as Counter Performance – Contract Law 2.0?*, Oxford/Baden-Baden, Hart/Nomos, 2020c, p. 77, at 86.

13 S. Ras Engelfriet, *Handboek ICT-contracten*, Utrecht, Ius Mentis, 2015, p. 24: “data should be regarded as by-product of a service”.

14 The German Chancellor Merkel said to the participants of the annual meeting of the World Economic Forum on 24 January 2018: “Die Antwort auf die Frage ‚Wem gehören die Daten‘ wird letztlich darüber entscheiden, ob Demokratie, Partizipation, Souveränität im Digitalen und wirtschaftlichen Erfolg zusammengehen. [...] Wir brauchen eine Soziale Marktwirtschaft 4.0, nicht nur eine Industrie 4.0.“; I. Schneider, ‘Governance and digital Sovereignty in the Data Economy: Data Trusteeship instead of Data Ownership’, in C. Godt/M. Lamping (Eds.), *A Critical Mind in the Triangle of Internal Market Law, Intellectual Property and Competition Law – Liber Discipulorum for Hanns Ullrich*, Berlin, Springer, 2021 (forthcoming), manuscript, p. 3.

15 Van Erp, 2020, *supra* note 12, p. 14.

16 Building on A. Perzanowski/J. Schultz, ‘Reconciling Personal and Intellectual Property’, 90 *Notre Dame Law Rev.* 2015, p. 1211. They stress the complementary tension. The reflection of classic property law versus IP law in this context is pursued in parallel by Franz Hofmann, Benjamin Raue and Herbert Zech who organised (after the submission deadline of this article) a conference on the very same topic ‘Eigentum in der digitalen Gesellschaft-Perspektiven von Sacheigentum und geistigem Eigentum, 20.11.2020.

This contribution is interested in the debate: “Who “owns” data?” It neglects the issue of data as subjects¹⁷ (software agents¹⁸ and AI creations¹⁹), and also the question of conflicts of interests between multiple processors.²⁰ Its focus is the subject-object relation, thus the assignment function of proprietary entitlements: The central question is the construction of raw data as “incoming” resource. In Sjef’s words, does the processor of data possess the data as her own (sic, was it “res nullius” beforehand?²¹) or was it someone else’s data (in technical terms: [in French] “detenteur ou possesseur”, [in German] “Fremdbesitz oder Eigenbesitz”)?²² The “input-question” refers to a central difference of classic property law and IP legal thinking. Broad-brushed and simplified, the default scenario of classical property law is that objects are owned (the core of the discipline circles around rules on “transfer” of title [acquisition or loss]); original acquisition²³ is today governed by public law. In contrast, the default scenario for IP law is information in the public domain. The very heart of IP laws is to define the creation of “new objects” (“inventions”, “creations”, “plant varieties”). A characteristic of IP-claims is that they are rather “strong”, and IP-law is therefore also a law of limitations. With “raw” information (“data”), the schism between these areas of laws is put back on the table. The present article is interested in how differently conflicts of interests as the flow of information moves and transforms are framed. Up to today, conflicts of interests have only been reflected in a constitutional framing of property, based on approaches of Elsabe van der Slide (a private law property law scholar) and Josef Drexl (an IP and competition law scholar).²⁴ The present contribution is interested how

17 Faust, 2016, *supra* note 5.

18 G. Teubner, ‘Digitale Rechtssubjekte? Zum privatrechtlichen Status von autonomen Softwareagenten’, 218 *Archiv für die zivilistische Praxis (AcP)* 2018, pp. 155-205.

19 A. Früh, ‘Inventorship in the Age of Artificial Intelligence’, in C. Godt/M. Lamping (Eds.), *A Critical Mind in the Triangle of Internal Market Law, Intellectual Property and Competition Law – Liber Discipulorum for Hanns Ullrich*, Berlin, Springer, 2021 (forthcoming).

20 A question which is essentially driving the debate, see the various examples in M. Barbero *et al.*, *Study on emerging issues of data ownership, interoperability, (re-)usability and access to data, and liability*, Brussels, 2017, (in the further course: ‘Deloitte Study 2017’), available at <https://ec.europa.eu/digital-single-market/en/news/study-emerging-issues-data-ownership-interoperability-re-usability-and-access-data-and> (last accessed 11 September 2020); for the example of the automotive industry see J. Metzger/L. Mischau, ‘Neutrale Server – Datenschutz und Datenwirtschaft im vernetzten Fahrzeug’, in Stiftung Datenschutz (Ed.), *Daten-Debatten*, Berlin, Erich Schmidt Verlag, 2020 (forthcoming).

21 Van Erp, 2020b, *supra* note 1, p. 10.

22 S. van Erp, Oral Lecture ‘Property and Technology’, Online ‘PropCon’ Conference, 7. April 2020, referring to the claim for vindication in insolvency, as decided by the Court of Appeal (England Wales) in *Your Response Ltd. v. Dateam Business Media Ltd.* [2014] EWCA (Civ) 281 [2014], 3 WLR 887; discussed by A. Boerding *et al.*, ‘Data Ownership – A Property Rights Approach from a European Perspective’, 11 *Journal of Civil Law Studies* 2018, p. 350; on data in insolvency: S. Schulze, *Daten als Kreditsicherungsmittel mit Bestand in der Insolvenz*, München, UTZ Verlag, 2019, p. 19 *et seq.*

23 Most noteworthy acquisition of water, minerals, archaeological relicts, waste management, land use.

24 E. van der Sijde, *Reconsidering the Relationship between Property and Regulation: A systematic constitutional approach* (dissertation defended at the University of Stellenbosch 2015), available at <http://hdl.handle.net/10019.1/97827> (last accessed 11 September 2020); J. Drexl, ‘Legal Challenges of the Changing Role of Personal

the property systems absorb these concerns. It will focus on “non-personal data”, governed by the EU Framework-Reg. 2018/1807, and rather on B2B contracts (acknowledging that the debate on personal data is much more advanced, due to the longstanding history of data protection since in the 70s. In addition, public media has quite well covered evolving claims emerging from personal data processed by the “big fives”,²⁵ data accumulated in cars²⁶ [mostly in the context of autonomous driving²⁷], and consumer protection.) This contribution puts the rather old-fashioned question of abstract allocation centre stage, and questions the position which assigns data to the processor by default.²⁸ It is interested in how property law versus IP law conceptualise the respective conflicts at hand.

The contribution departs from the assumption that the answer does not only lie in any of the existing areas of law, be it conventional property law, IP law, competition law or internal market law. “Data rights” require an understanding of a “*greffe*” (Amstutz²⁹), a reflection about a matrix of proprietary relations, finetuned by “procedural restructuring”,³⁰ open

and Non-Personal Data in the Data Economy’, *Max Planck Institute for Innovation & Competition Research Papers*, No. 18-23, 2018, pp. 5-19, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3274519; for earlier references by the author to these pioneering works see C. Godt, ‘Conflict Configuration’, in C. Godt/L. Guibault/G. Van Overwalle/D. Beylveled (Eds.), *Boundaries to Information Property*, London, Intersentia, 2021a (forthcoming); C. Godt, ‘How to Stay Modern Feudalism? Comparing EU and US Methodologies in Containing Post Sale Restraints by Way of IP-Exhaustion’, in C. Godt/M. Lamping (Eds.), *A Critical Mind in the Triangle of Internal Market Law, Intellectual Property and Competition Law – Liber Discipulorum for Hanns Ullrich*, Berlin, Springer, 2021b (forthcoming).

- 25 The term “The Big Five” refer to Appel, Google, Microsoft, Amazon, and Facebook; see only BGH, KVR 69/19, decision of 23.6.2020 – *Facebook*.
- 26 *Frankfurter Allgemeine Zeitung*, 5. May 2019, p. T1, describing six sets of car data: (1) ‘necessary’ data stirring the driving functions of the car removed from the individual driver’s control, (2) driver’s control over heat and light, (3) entertainment and communication (music, e-mails, connection with one’s smart home, e.g. in order to open the garage door), (4) ‘surveillance’ data of the car for external and internal purposes. External control can be exerted once the car escapes a prescribed geographical area, or exceeds the maximal speed limit. Internal control (or delegated internal control) can be exerted for ‘enhanced’ inspection (precision data about breaks and tires), (5) Some manufactured differentiate their product lines by ‘digital (up-)grading’ which one need to rent after a time period (months, years) of free use, (6) personalised data streams (usually submitted to ‘PIC’, but essentially removed from the driver’s control) to be sold to third parties (e.g. insurances).
- 27 Ritter/Mayer, 2018, *supra* note 5, pp. 244 *et seq.*; Metzger/Mischau, 2020, *supra* note 20.
- 28 Inter alia pioneering: H. Zech, *Information als Schutzgegenstand*, Tübingen, Mohr Siebeck, 2012, p. 386; more recently: J. Jöns, *Daten als Handelsware*, Baden-Baden, Nomos, 2019, pp. 226, 248; G. Wagner, § 823, in *Münchener Kommentar zum BGB*, 7th ed., München, C. H. Beck, 2017, para. 296.
- 29 A term coined by M. Amstutz/V. Karavas, ‘Weltrecht: Ein Derridasches Monster’, in G.-P. Calliess *et al.* (Eds.), *Soziologische Jurisprudenz – Festschrift G. Teubner*, Berlin, De Gruyter, 2009, pp. 647-674 (at p. 648): A *Greffe* is “a structure which works off the heterogeneity of its heterogeneous bodies and makes them disappear” (translation by the author).
- 30 A term coined for recent EU copyright regulations, M. Grünberger, ‘From a Rights Based to a Procedural Approach: Re-Purposing the Exercise of Intellectual Property Rights’, in C. Godt/M. Lamping (Eds.), *A Critical Mind in the Triangle of Internal Market Law, Intellectual Property and Competition Law – Liber*

to fragmentation which reflects societal embeddedness.³¹ It is in search of a constitutional thinking *inside* property law. The question “Who owns it?” is understood as a metaphor. The public discourse might even frame collective or public interests as “property right”.³² This contribution aims to further entangle the different interests which risk to be mixed up or prematurely absorbed when using the single term “ownership”.

2 DATA – A CONTESTED “PROPRIETARY OBJECT”

Sjef has been interested in the conceptualisation of data early on. At the beginning of the 2010s, when the approach prevailed that digital relationships are sufficiently governed by contracts, he referred to the *Hoge Raad*'s decision on the quasi-property status of a virtual amulet in the game *Runescape*³³ (emerging in the context of criminal law³⁴), and to the protective function of property. In a similar vein, he questioned Facebook's standard terms with a property lawyer's intuition as a new form of acquisition, and followed closely the emerging judicial arguments if a Facebook account gets “bequested” by the parents after a mortal accident (suicide?) of an adolescent daughter.³⁵ He wrote about digital assets,³⁶ bitcoins,³⁷ blockchain based digital land registries,³⁸ and found interest in research work

Discipulorum for Hanns Ullrich, Berlin, Springer, 2021 (forthcoming); on the importance of reversals of proof in IP also Godt 2021b (forthcoming), *supra* note 24.

31 D. Wielsch, ‘Differenzierungen des Eigentums’, in S. Keller/S. Wiprächtiger (Eds.), *Recht zwischen Dogmatik und Theorie*, Zürich/St. Gallen/Baden-Baden, Nomos, 2012, p. 329.

32 As seen in other contexts, C. Godt, *Eigentum an Information*, Tübingen, Mohr Siebeck, 2007, at p. 436.

33 Dutch Supreme Court (Hoge Raad), decision of 31 January 2012, ECLI:NL:HR:2012:BQ9251, NJ 2012/536 (*Runescape*).

34 A case about the ‘theft’ of a digital theft in the game of a virtual amulet. Followed by a decision by the Cour de Cassation des Luxembourg in 2014 with regard to downloading, Luxembourg, Cour de cassation N° 17 / 2014 pénal. du 3.4.2014. Not. 6458/10/CD Numéro 3304 du registre, available at <https://juricaf.org/arret/LUXEMBOURG-COURDECASSATION-20140403-1714> (last accessed 11 September 2020).

35 German Supreme Court (BGH), decision of 21. Juni 2018, Az. III ZR 183/17; reversing the Regional instance court (KG) decision of 31.05. 2017, Az. 21 U 9/16, which had reversed the first instance court's obligation to Facebook (LG Berlin, decision of 17.12.2015, Az. 20 O 172/15).

36 S. van Erp, ‘Ownership of digital assets?’, 5 *European Property Law Journal* 2016, pp. 73-76, J. Uitdehaag/S. van Erp, ‘Digital assets’, in M. Schmitz/P. Gielen (Eds.), *Avoris dématérialisés et exécution forcée. Digital assets and enforcement*, Editions Bruylant, 2019, pp. 175-180.

37 J. Uitdehaag/S. van Erp, ‘Attachment of digital assets: crypto-currencies’, in M. Schmitz/P. Gielen (Eds.), *Avoris dématérialisés et exécution forcée. Digital assets and enforcement*, Brussels, Bruylant, pp. 181-189.

38 S. van Erp 2019 (sura n. 1).

about (digitally bartered) proprietary empty cargo vessel space,³⁹ and CO₂ allowances,⁴⁰ digital bills of lading,⁴¹ and software “grandchildren licenses” with *in rem* effects.⁴²

Sjef sensed early on that data is a distinct object. He preferred the term “asset” when reflecting about “data entitlements”.⁴³ Building on his earlier works, he is interested in conceptualising a “management right” rather than “ownership” as exclusive allocation.⁴⁴ He writes: “As to data, the degree of ownership we should try to understand is management, as the expression of access, control, portability and erasure.”⁴⁵

Today, we categorise “data” along three characteristics. The first line of arguments aims at distinguishing “data” against “information” and “facts”. Sjef starts with the ISO definition of data as “reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing.”⁴⁶ Implied is the central distinction between “data” and “information” which has become standard:⁴⁷ its core is that data requires “framing”,⁴⁸ which brings up questions as to “who’s” and by which criteria.⁴⁹ In Marc Amstutz words: “Data Ownership merges individual and collective autonomies”.⁵⁰ While jurisdictions which only accept “property” in things and creations have witnessed

39 V. Heutger, ‘Derivatives in Maritime Freight: Novel Property Rights with Prospects and Pitfalls’, in C. Godt (Ed.), *Regulatory Property Rights*, Leiden/Boston, Brill, 2017, pp. 223-234.

40 C. Godt, “‘Regulatory Property Rights’ – A Challenge to Property Theory”, in C. Godt (Ed.), *Regulatory Property Rights*, Leiden/Boston, Brill, 2017, p. 33.

41 D. Saive, *Das elektronische Konnossement – Umsetzung der Anforderungen aus § 516 Abs. 2 HGB durch funktionsäquivalente Blockchain-Token*, Tübingen, Mohr-Siebeck, 2020.

42 C. Godt/J. Simon, ‘In Rem Effects of Non-exclusive Sub-licenses in Insolvency’, in C. Godt (Ed.), *Regulatory Property Rights*, Leiden/Boston, Brill, 2017, p. 207.

43 F. Faust, ‘Ausschliesslichkeitsrechte an Daten’, in Stiftung Datenschutz (Ed.), *Dateneigentum und Datenhandel*, Berlin, Erich Schmidt, 2019, p. 94; Faust, 2016, *supra* note 5.

44 Which is, in a jurisdiction such as Germany, conceived to be the core of ownership, J. Wilhelm, *Sachenrecht*, 6th ed., Berlin, DeGruyter, 2019, para. 237; C. von Bar, *Gemeineuropäisches Sachenrecht*, Vol. 1, München, C. H. Beck, 2015, para. 22.

45 Van Erp, 2020c, *supra* note 12, p. 93; in this attempt, he aligns with Boering *et al.*, 2018, *supra* note 22, p. 350.

46 Van Erp, 2020c, *supra* note 12, p. 80; ISO/IEC 2382-1, revised by ISO/IEC 2382:2015 – Information technology – Vocabulary.

47 This is what Herbert Zech calls ‘semantic information’ (content), as distinguished from ‘syntactic information’ (representation of signs) and structural information (as embodied in material), Zech, 2012, *supra* note 28.

48 This is why information is not neutral. In the words of Rob Kitchin, *The Data Revolution: Big Data, Open Data, Data Infrastructure & their Consequences*, London, Sage, 2014, p. 2: “These choices reflect the human agency present in the creation of data”; M. Anzini/A.-C. Peirrat, *Data Pools as Information Exchange between Competitors: An Antitrust Perspective*, Paper submitted to the ASCOLA Conference, 25 June 2020, available at https://www.cep.eu/fileadmin/user_upload/cep.eu/Studien/cepInput_Data_pools/cepInput_Data_Pools_as_Information_Exchanges_between_Competitors_An_Antitrust_Perspective.pdf (last accessed 11 September 2020); referring to C. Jones/C. Tonetti, *Nonrivalry and the Economics of Data*, 29 August 2019, available at <https://www.gsb.stanford.edu/gsb-cmis/gsb-cmis-download-auth/469311?undefined> (last accessed 11 September 2020).

49 Ullrich, 2019, *supra* note 5, p. 24, at note 73.

50 M. Amstutz, ‘Dateneigentum: Funktion und Form’, 218 *AcP* 2018, 438, at pp. 535 *et seq.* with reference to Dan Wielsch.

tensed debates on data ownership, few jurisdictions such as Latvia⁵¹ and Luxembourg⁵² stipulated data ownership, while jurisdictions which also embrace claims as property⁵³ have seen a more open, but still have had controversial debate.⁵⁴ Next to data and information is the distinction of data against facts. Facts are part of the real world what implies that protection for data must be “more robust” than for facts,⁵⁵ alluding to the delineation of public domain facts and creations in copyright.⁵⁶ The distinction between data and facts positions data as a category between facts and IP: For a selected/arranged accumulation of data (“content”) with substantial investment, a proprietary *sui generis* title is available under the Database Directive,⁵⁷ submitted to various exceptions (e.g. “lawful use”, *infra*). Full-fledged copyright protection is available for data compilations with an “original selection or arrangement”.⁵⁸ The second central category is the distinction between personal and “non-personal” data.⁵⁹ The idea is that personal information is attributed to the person, whereas non-personal information is – as one often reads – in the public

51 Deloitte Study 2017, *supra* note 20, p. 185.

52 Art. 567 Code de Commerce Luxembourg; critical on this legal reform F. Hoffmann, “Dateneigentum” in *der Insolvenz*, *Juristenzeitung (JZ)* 2019, 960, at p. 968.

53 Such as France, Belgium, the Netherlands, Austria, Common Law.

54 Such for Austria only G. Klammer, *Dateneigentum*. Das Sachenrecht der Daten, Wien, Jan Sramek Verlag, 2019.

55 T. Scassa, *Data Ownership*, CIGI Papers No. 187 – September 2018, p. 1, referring to a Canadian court decision not verified.

56 With noteworthy borderline case for ‘fictionalized facts’ (attributed to the copyright holder in the case of a lexicon for the Harry Potter series of novels by the US District Court for the Southern District of New York, 575 F.Supp.2d 513 [SDNY 2008] – *Warner Bros. Entertainment, Inc. and J. K. Rowling v. RDR Books*) and ‘seismic data’. In the latter case, the Alberta Court of Queen’s Bench divided seismic data about the ocean floor into two categories, ‘field data’ and ‘processed data’, distinguished from ‘features of the sub-ocean landscape’. The judge found that both categories, ‘field data’ and ‘processed data’, meet the threshold of originality, since each required considerable skill and judgement for their creation (2016 ABQB 230, 38 Alta LR (6th) 48, aff’d 2017 ABCA 125, appeal denied 2017 CanLII 80435 (SCC) *Geophysical Services Inc. v. Encana Corp.*). The judge concluded that seismic data are “an expression of [the firms] views of what the image of the subsurface of the surveyed area represents.” Scassa, 2018, *supra* note 55, p. 10, comments that the wording signals that the judge seemed to recognize copyright in the data themselves rather than just in the overall compilation of data.

57 Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ 1996 L 77, p. 20.

58 Dubbed ‘merger doctrine’, discussed by Scassa, 2018, *supra* note 55, p. 10, in distinctions to ‘factual compilations’ for which copyright is denied, the leading case is US Supreme Court, 499 US 340, 111 S Ct 1282 (1991) – *Feist Publications Inc v. Rural Telephone Services Co.*

59 While this distinction appears to be strong European black letter law, Ingrid Schneider cautions that the categorization might be overstressed, Schneider, 2021 (forthcoming), *supra* note 14, pp. 3-4. This caution is warranted considering the CJEU considers also dynamic IP addresses as personal data, C-582/14, (ECLI:EU:C:2016:930).

domain.⁶⁰ Even if personal data can be bartered,⁶¹ the person remains linked to it. This translates legally into “withdrawal rights” such as the right to erasure⁶² and the “portability right” stipulated by the (public law) EU-General Data Protection Regulation (GDPR).⁶³ The third category refers to the distinction between consumers and businesses. Beside their “portability right” for their personal data, consumers have a porting right also for non-personal data when the contract terminates (Art. 16 sec. 4 Dir. 2019/770). Businesses do not enjoy secure mandatory access right. Art. 6 sec. 1 lit. a Reg. 2018/1807⁶⁴ obliges the Commission to “encourage and facilitate” codes of conducts which provide for a “porting right” for non-personal data, so that the transfer of data to either another or the own IT-processor becomes possible. Beyond, businesses only have a right to information under the Fairness and Transparency Regulation⁶⁵ and access claims may be argued under national contract law.⁶⁶ Yet, scholars advocate an access right for “re-use” for businesses in various forms (*infra*).

Thus, Sjeff positions data in the domain of property law. His aim is to apply values of property law to the data economy, such as stability, policy choices (*inter alia* protection of commerce), leading principles (*inter alia* Numerus Clausus), and ground rules (*inter alia* nemo dat rule).⁶⁷ This is why he proposed in 2019 the (ownerless!) Québec trust as a template for fragmented management rights in data. In 2020, his thoughts circle around data as items of “dynamic property”,⁶⁸ in order to counter the factual control mechanisms of processors and the current practise of ubiquitous (compulsory) contractual transfers of data entitlements.

Aside of contract and property lawyers, there are intellectual property (IP) and competition lawyers who engage in the discussion about “data ownership”. IP law is

60 Deloitte Study 2017, *supra* note 20, pp. 184-185 (report about the French law). See, however *infra* 3c (agricultural data), already land related data is – in practise – attributed to the owner of the land.

61 Art. 2 sec. 7 Dir. 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital service, OJ 2019 L 136, p. 1.

62 Also called the ‘right to be forgotten’, first acknowledged in 2014 by the CJEU in *Case 131/12, Google Spain v. Spanish Data Protection Agency and Mario Costeja González (Google Spain)*, ECLI:EU:C:2014:317; later stipulated in Art. 17 sec. 2 GDPR. In fact, the relative value of the individual prior consent (Art. 6 sec. 1 subsec. 1 lit a GDPR) vis-à-vis other parallel stipulated ‘justifications for data processing’, which might eventually supersede the withdrawal of the individual person, is highly controversial (cp. Art. 6 sec. 1 subsec. 1 lit. b-f GDPR).

63 Art. 17 sec. 2 and Art. 20 Reg. 2016/679 (GDPR), OJ 2016 L 119, p. 1.

64 Reg. 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union, OJ 2018 L 303, p. 59.

65 Reg. 2019/1150 the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services, OJ 2019 L 186, p. 57.

66 A. Metzger, ‘Access to and Porting of Data under Contract Law: Consumer Protection Rules and Market-Based Principles’, in J. Drexel (Ed.), *Data Access, Consumer Protection and Public Welfare (Verbraucherrechtstage 2019)*, Baden-Baden, Nomos, 2020 forthcoming (manuscript pp. 9-11).

67 Van Erp, 2020c, *supra* note 12; concurrent Wagner 2017, *supra* note 28, para. 297.

68 Van Erp, 2020b, *supra* note 1.

associated due to the immaterial nature of data, the *factual* quasi-exclusionary nature of databases,⁶⁹ the widespread protection of algorithms,⁷⁰ and the incorporation of proprietary data⁷¹ and business secrets⁷² in databanks. In addition, the dualistic structure of copyright allows a split of personal and patrimonial interests in the same right. However, the premises of general private law on the one hand, and IP-law on the other, are very different – notwithstanding that several scholars cross the lines. While pioneering scholars such as Karl-Heinz Fezer⁷³ and Herbert Zech⁷⁴ early embraced the idea of “digital ownership”, despite for different subjects and for different reasons, many IP lawyers remained sceptical as a matter of principle. The reason is that IP entitlements are primarily conceived as market control rights, not as control over objects. They are granted for performance, not on mere information. While firmly rooted in the property paradigm, protection of IP-rights is purpose-bound (Grünberger⁷⁵). IP-law is all about incentives, very little about freedom. Very different to the general take on property, exclusive IP rights are conceived as exceptions to the rule of competition. This is why IP laws define the rule under which rights emerge; their grant requires justification. This balancing is reflected by limited protection terms, numerous limitations and exceptions. While often not accepted

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- 69 H. Richter/R. Hilty, ‘Die Hydra des Dateneigentums – eine methodische Betrachtung (The Hydra of “Data Property Rights” – A Methodological View)’, in Stiftung Datenschutz (Ed.), *Dateneigentum und Datenhandel*, Berlin, Erich Schmidt, 2019, pp. 241-259 (also available at <https://ssrn.com/abstract=3263404> [last accessed 11 September 2020]).
- 70 P. Drahos, ‘TRIPS through a Military Looking Glass’, in C. Godt/M. Lamping (Eds.), *A Critical Mind in the Triangle of Internal Market Law, Intellectual Property and Competition Law – Liber Discipulorum for Hanns Ullrich*, Berlin, Springer, 2021 (forthcoming), manuscript, p. 14.
- 71 Proprietary data includes data from an agricultural inputs company about its agronomic products (seeds, pesticides), the result of field tests or other exclusive information, such as fertility of soil in a particular region for land scouting services, C. Atik/B. Martens, ‘Competition Problems and Governance of Non-personal Agricultural Machine Data: Comparing Voluntary Initiatives in the US and EU’, Joint Research Council (JRC) Digital Economy Working Paper 2020-07 (Dec. 2020), p. 5 (available at <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/competition-problems-and-governance-non-personal-agricultural-machine-data-comparing> (last accessed 22 December 2020)).
- 72 Jöns, 2019, *supra* note 28, p. 236 advocates therefore a parallel constitution of data along the model of copyright, building on C. Wendehorst, ‘Die Digitalisierung und das BGB’, *NJW* 2016, pp. 2609-2613; and N. Härtling, ‘“Dateneigentum” – Schutz durch Immaterialgüterrecht?’, *Computer und Recht (CR)* 2016, pp. 646-649.
- 73 K.-H. Fezer, ‘Dateneigentum der Bürger – Ein originäres Immaterialgüterrecht sui generis an verhaltensgenerierten Informationsdaten der Bürger’, *Zeitschrift für Datenschutz (ZD)* 2017a, p. 99; K.-H. Fezer, ‘Dateneigentum’, *MMR* 2017b, p. 99; K.-H. Fezer, ‘Digitales Dateneigentum – ein grundrechtsdemokratisches Bürgerrecht in der Zivilgesellschaft’, in Stiftung Datenschutz (Ed.), *Dateneigentum und Datenhandel*, Berlin, Erich Schmidt, 2019, p. 101.
- 74 H. Zech, 2012, *supra* note 28; H. Zech, ‘Industrie 4.0’ - Rechtsrahmen für eine Datenwirtschaft im digitalen Binnenmarkt’, *GRUR* 2015a, p. 1151; H. Zech, ‘Daten als Wirtschaftsgut – Überlegungen zu einem “Recht des Datenerzeugers”’, *CR* 2015b, p. 137.
- 75 Grünberger, 2021 (forthcoming), *supra* note 30.

as generic “use rights”, but as “privileges” only,⁷⁶ exceptions limit the property right. The core is that IP protection is never absolute, and not related to “the information” or “the idea”, but limited to the *creative* expression or the technical teaching.

The point of departure (private law vs. IP law) has several ramifications on the data debate. I shall highlight five of them. First, the public domain is an integral part of IP-reflection. Input information which does not meet the creativity threshold *remains* in the public domain (free to be used, no compensation due), protected knowledge *becomes* public domain once the protection term has expired. And even if protected, the purposes might demand public access rights by way of stipulated exceptions and privileges (for free or remunerated), and non-written access rights (under competition law).⁷⁷ The public domain may also get contractually re-constructed.⁷⁸ Different from private property lawyers, publicly available information is an elementary category for IP- and competition lawyers. Non-protection is not *per se* a problem. Whereas in property law “res nullius” has become a rare exception, IP law has remained susceptible for the attached values. Second, in contrast to property lawyers, IP-lawyers do subscribe to a different notion of “stability” since their mission is to foster economic change and innovation.⁷⁹ IP-laws point of reference is dynamic competition in which the right to exclude may unfold an advantage (the characteristic profit margin above market level). Only from the limited perspective of the right holder does the IP right provide stability in the “turmoil of competition” as long as the right lasts. The core of the IP philosophy, however, is “creative destruction” (Schumpeter⁸⁰). It strikes a balance between the central property function (investment incentive; wealth accumulation) and free trade. Besides time limitations, the most evident institution for the legal concept of the “embeddedness of exclusive rights in competition and trade” is the principle of

76 Recently highlighted by T. Dreier, ‘Caught between Post- and Neo-Colonialism – IP for Traditional Knowledge, Traditional Cultural Expressions and Indigenous Resources’, in C. Godt/M. Lamping (Eds.), *A Critical Mind in the Triangle of Internal Market Law, Intellectual Property and Competition Law – Liber Discipulorum for Hanns Ullrich*, Berlin, Springer, 2021 (forthcoming).

77 On the four pillars of the public domain L. Guibault, ‘Drawing Contours of the European Public Domain’, in C. Godt *et al.* (Eds.) 2021, *supra* note 24, manuscript, p. 16; following P. Samuelson, ‘Mapping the Digital Public Domain’, 66 *Law & Comp. Probs* 2003, pp. 147-172.

78 L. Guibault/P. B. Hugenholtz (Eds.), *The Future of the Public Domain: Identifying the Commons in Information Law*, Alphen aan den Rijn, Kluwer Law International 2006; J. H. Reichman/P. F. Uhlir, ‘The Contractually Reconstructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property Environment’, 66 *Law & Comp. Probs* 2003, p. 317.

79 ‘Stability’ as such is not a value. Entitlements are always timely limited. ‘Disruptive technology’ is not seen as evil, but is part of the disciplinary DNA. As Joseph Schumpeter explained in his seminal work *Business Cycles* of 1939, ‘disruptive innovation’ fosters growth – and this is exactly what IP-laws incentivise. Yet, IP property provides for fences in competition, and in this sense *stabilizes* the prospect on returns of investments.

80 Seminal: J. A. Schumpeter, *Capitalism, Socialism and Democracy*, reprint, London, Routledge, 1994 (orig. 1942), pp. 82-83. The ‘gale of creative destruction’ describes the ‘process of industrial mutation that continuously revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one’.

exhaustion.⁸¹ Exhaustion splits the original single IP-title into two: one continuing, but timely limited title to the invention/creation, and one timely unlimited property title to the single goods. It thus limits the IP-right and provides stability to the purchaser.⁸² Data entitlements need to be embedded in similar (“cut-off”) principles.⁸³ Third, IP law’s perception is dynamic and sequential in time. The knowledge output of one inventor/creator is the input for the next.⁸⁴ This creates inherent fragmentation. IP laws have developed different types of fragmentation, such as the dual theory for copyright (which defines the relation of creator and economic partner) or the dependency-principle in patent law (which defines the relation of consecutive patents). Thus, fragmentation is inbuilt in IP (and not challenged as a legal concept, regardless of the legal family). The alignment of data entitlements requires a similar conceptualisation.⁸⁵ Fourth, the IP-title *may* have a value as commodity. However, this value is only a reflection of the monetary value generated in competitive markets of the copies which embody the immaterial object. In contrast, in private law, the object covered by the property title is conceptualised as embodying the value of *that* item. The underlying idea is twofold: First, the item embodies the proprietary value, and this creates stability. Second: the object provides the owner with the means to invest and generate profits (an idea which derives from “*dominium directum*” which allows the *superior* to collect rent from the person actually using the land [*inferior*]). Only the latter idea is shared with IP law in that the IP right creates an incentive that the owner takes care of his things (invests), devise means to create an economic surplus (“to manage it”), thus fostering societal growth. Only in this regard does IP law “mimick”⁸⁶ property law. Yet, data sits in the middle. As such, it has seldom a value in itself. It is the cumulative nature of big data which both, has value and can be used to further create value. This hybridity needs to be reflected in future concepts, and would be neglected if “absolute title” would be granted to the processor. Fifth, the functional embeddedness⁸⁷ is today clearly acknowledged for IP. Rights have to fulfil a public purpose. This creates an inherent tension between industrial and competition policies. The industrial policy decision is to protect immaterial goods and to grant strong entitlements (because immateriality “perpetuates”); remedies reach beyond the object itself (so-called “reach through”-claims). It is for

81 Godt, 2021b (forthcoming), *supra* note 24.

82 This argument is stressed by Perzanowski/Schultz, 2015, *supra* note 16, pp. 1217, 1249.

83 Time limitations are conceived as central to IP lawyers, Ullrich, 2019, *supra* note 5, p. 22.

84 Constituting in conjunction with spill over the ‘dual nature of knowledge externalities’, D. Kim, ‘Incentives for Data-Sharing as a Case on (Regulating) Knowledge Externalities’, in C. Godt/M. Lamping (Eds.), *A Critical Mind in the Triangle of Internal Market Law, Intellectual Property and Competition Law – Liber Discipulorum for Hanns Ullrich*, Berlin, Springer, 2021 (forthcoming), manuscript, p. 7.

85 The fragmentation is evident for the dualist tradition in copyright, however, it is equally present for the bifurcation in monist traditions which distinguish the title and moral rights.

86 Van Erp, 2020b, *supra* note 1, p. 5.

87 Emphasised as ‘re-purposing’, and operationalised by sectorial regulation, see Grünberger, 2021 (forthcoming), *supra* note 30.

competition law to contain the negative effects by defining limitations and cut-off rules. This complexity is an important difference to property entitlements in objects (which are today defined by “private utility”). The architecture of data entitlements would need a similar system of “checks and balances”.

For all these differences, the discussion about “data ownership” unfolds differently in the IP-context compared to the purely private law context, but is by no means less controversial. Proponents of data property either call for more control of the individual (Kilian,⁸⁸ Fezer,⁸⁹ Amstutz⁹⁰), for more incentives for investments (Zech,⁹¹ Specht,⁹² Jöns⁹³), or for more creativity dependent on the sectorial specificities (Grünberger⁹⁴). Despite the common stance as to the instrument and to the liberal underpinning, these approaches differ strongly as to *who* will be the owner (the originator for Fezer or the processor for Zech) and for which purpose (liberty for Fezer versus incentives for Zech). Opponents focus on the functioning of markets (Drexl,⁹⁵ Hilty⁹⁶) or competition (Ullrich,⁹⁷ Schweitzer/Peitz,⁹⁸ Kerber,⁹⁹ Zimmer¹⁰⁰). The central arguments are twofold. First, there is no lack of incentive to invest in databanks. Second, commodification would propel the loss of private sovereignty.¹⁰¹ Taken together, a data property right would exacerbate power accumulation in the market and impede access to content data.¹⁰² In fact, the approaches

88 W. Kilian, ‘Informationelle Selbstbestimmung und Marktprozesse’, CR 2002, p. 921.

89 Fezer, 2017a und 2017b, *supra* note 73.

90 Amstutz, 2018, *supra* note 50, p. 438.

91 Zech, 2015a, *supra* note 74; Zech, 2015b, *supra* note 74, K. Johanna/H. Zech, ‘Datenbankherstellerschutz für Rohdaten?’, CR 2017, p. 417.

92 More moderate compared to Zech: L. Specht, ‘Ausschließlichkeitsrechte an Daten – Notwendigkeit, Schutzzumfang, Alternativen’, CR 2016, p. 288.

93 Jöns, 2019, *supra* note 28.

94 Grünberger, 2021 (forthcoming), *supra* note 30.

95 Drexl, 2018, *supra* note 24.

96 Richter/Hilty, 2019, *supra* note 69.

97 Ullrich, 2019, *supra* note 5, p. 25.

98 H. Schweitzer/S. Peitz, *Datenmärkte in der digitalisierten Wirtschaft: Funktionsdefizite und Regelungsbedarf*, ZEW Discussion Paper No. 17-043, 2017, available at <http://ftp.zew.de/pub/zew-docs/dp/dp17043.pdf> (last accessed 14 September 2020), at G; J. Crémer/Y.-A. de Montjoye/H. Schweitzer, *Competition Policy for the digital era. Final report*, Brussels, European Commission, 2019, available at <https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf> (last accessed at 14 September 2020).

99 W. Kerber, ‘A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis’, *GRUR Int.* 2016, p. 989; W. Kerber, ‘Rights on Data: The EU Communication “Building a European Data Economy” from an Economic Perspective’, in S. Lohsse et al. (Eds.), *Trading Data in the Digital Economy: Legal Concepts and Tools*, Baden-Baden, Nomos, 2017, p. 109.

100 D. Zimmer, ‘Property Rights Regulating Data?’ in S. Lohsse et al. (Eds.), *Trading Data in the Digital Economy: Legal Concepts and Tools*, Baden-Baden, Nomos, 2017, p. 101.

101 N. Wessels/A. Laubach/P. Buxbaum, ‘Personenbezogene Daten in der digitalen Ökonomie – Eine wirtschaftliche und juristische Betrachtung’, in C. Ochs (Ed.), *Die Zukunft der Datenökonomie – Zwischen Geschäftsmodell, Kollektivgut und Verbraucherschutz*, Springer 2019, pp. 11-27 (at p. 23).

102 This is why Ullrich (2019, *supra* note 5, p. 24) opposes Zech’s distinction between semantic and syntactical information. Protection of syntactical information would impede access to content information.

of Amstutz and Drexel appear rather related, despite the use of different languages and the clear opposed results. Amstutz and Drexel envision differentiated rights linked to other individuals and to collective needs. Amstutz’ clearly distances his approach from Zech’s. “Data are not assets but media.”¹⁰³ “The IP model is diametrical in opposition to the idea of civil society data ownership”.¹⁰⁴

Both, property and the IP scholars take reference to economic literature which departs from the non-rivalness of data. This term resonates with the public good qualification, although the second limb of its definition (non-exclusiveness) is usually exerted by factual control. This point of departure defines the structure of the argument. Public goods are prone to market failures. Either “well-defined property rights” (Coase¹⁰⁵) or regulation are required. This juxtaposition gives rise to the question how data is most efficiently used. While in legal literature it seems to be common sense, that data has become a (valuable) currency in exchange of a service, economic literature has come to reject the notion of data as a valuable object. “The marginal value of collecting additional data to built-up data bases is very low or zero. This depresses the market value of individual data.”¹⁰⁶ “Data have no value on their own.”¹⁰⁷ The economic rationale prevails that assigning “property” to data will not remedy, instead the concomitant “alienability” will exacerbate the problem of power accumulation. In this reasoning, economic literature is concurrent with competition and IP law.¹⁰⁸ It is against the backdrop of obvious shortcomings of exclusivity, anti-trust concerns and lock-ins, that “access” has become the key term which has been proposed in three different forms. The first approach advocates a self-standing entitlement directly against (*sic* “mandatory” obligation of) the processor, either based on anti-trust law with reference to a market dominant data processor,¹⁰⁹ or based on data as “essential

103 Amstutz, 2018, *supra* note 50, p. 528.

104 *Id.*, p. 527.

105 R.H. Coase, ‘The Problem of Social Cost’, 3 *Journal of Law and Economics* 1960 (October), pp. 1-44.

106 Atik/Martens, 2020, *supra* note 71, pp. 16/17 (for non-personal data), and this “explains why intermediary platforms cannot give farmers a meaningful remuneration”. For the same reasoning with regard to personal data: D. Acemoglu *et al.*, *Too much data: prices and inefficiencies in data markets*, NBER Working Paper 26296, 2019.

107 Atik/Martens, 2020, *supra* note 71, p. 8: “Data have no value on their own. They become valuable when they can be used to generate more revenue in product and service markets. Capturing the value of data requires some degree of integration between upstream data and downstream product and services markets.”

108 Kim, 2021 (forthcoming), *supra* note 84, p. 4.

109 See pending legislative draft for a 10th revision of the German Act against Restraints of Competition which proposes to introduce new instruments, especially Section 18(3b): Intermediation power; Section 19a: Paramount crossmarket importance for competition; Section 20(1): Relative market power; see Federal Ministry for Economic Affairs and Energy, *Gesetzentwurf des Bundesministeriums für Wirtschaft und Energie, Entwurf eines Zehnten Gesetzes zur Änderung des Gesetzes gegen Wettbewerbsbeschränkungen für ein fokussiertes, proaktives und digitales Wettbewerbsrecht 4.0 (GWB-Digitalisierungsgesetz)*, 9. Sept. 2020, available at <https://www.bmwi.de/Redaktion/DE/Downloads/Gesetz/gesetzentwurf-gwb-digitalisierungsgesetz.pdf> (last accessed 18 September 2020); as advocated by academia: J. Drexel, ‘Neue Regeln für die Europäische Datenwirtschaft? Ein Plädoyer für einen wettbewerbspolitischen Ansatz’, *NZKart*

facility”.¹¹⁰ The second approach refers to contract law, either as advised terms for co-generated databases¹¹¹ (“opt-in”), as compulsory sectorial contract law,¹¹² or as a general (default) private law rule¹¹³ (“opt out”). The third approach advises organisational forms of “intermediaries” (“trusted third parties”) which already exist in the automotive, energy, and banking/payment sectors.¹¹⁴ Even Fezer advocates a public agency to pool “data property” of citizens and function as their “representative” (evidently aside of state data protection agencies).¹¹⁵ Jones/Tonetti¹¹⁶ propose the pooling of property rights in consumers, Metzger/Mischau¹¹⁷ stress the neutrality of third party” intermediaries for the pooling of car driving related data, Atik/Martens¹¹⁸ and Kenney et al¹¹⁹ report about several designs of agricultural neutral intermediaries in France, the US and the Netherlands.¹²⁰ Yet, the central problem of setting up these intermediaries is finance.¹²¹ The probable high service costs upstream are to be factored-in against reduced costs in the future and better services downstream.

2017, 415, at p. 418; A. Metzger, ‘Mehr Freiheit wagen auf dem Markt der Daten: Voraussetzungen und Grenzen eines Marktmodells für “big data”’, in A. Dutta/C. Heinze (Eds.), *Mehr Freiheit wagen – Symposium zur Emeritierung von Jürgen Basedow*, Tübingen, Mohr Siebeck, 2018, 131 (pp. 144-145).

110 S. Esken, ‘Dateneigentum und Datenhandel’, in Stiftung Datenschutz (Ed.), *Dateneigentum und Datenhandel*, Berlin, Erich Schmidt, 2019, 73, at p. 83.

111 Principles 23-25 ‘Data Rights Beyond Co-Generation’ of the ALI-ELI Principles for a Data Economy – Data Rights and Transactions” (last version 22. May 2020). Co-generation is broadly defined by a non-exhaustive list of circumstances which should be taken into account when stipulating contractual access and porting rights, such as that the data is necessary for the normal use, maintenance or resale of the product or service, for quality monitoring, for the understanding of the party’s own operations, for the development of new products or services or for preventing a lock-in situation, as reported by A. Metzger, 2020, *supra* note 66.

112 European Commission, ‘European data strategy for data’, COM(2020) 66 final, 19 February 2020, p. 13.

113 Qualified as ‘majoritarian default rule’, by A. Metzger, 2020, *supra* note 66, while he stresses that contract of freedom has to be secured by opt-put options.

114 See Deloitte Study 2017, *supra* note 20, e.g. for the energy sector p. 336; a critical debate is unfolding: R. Hilty/V. Moscon, ‘Online Intermediaries as a Vehicle for Acts of Unfair Commercial Practices and Trade Secrets Infringement: What Liability within the European Legal Framework?’, in G. Frosio (Ed.), *The Oxford Handbook of Online Intermediary Liability*, Oxford, Oxford University Press, 2020, pp. 421-443.

115 K.-H. Fezer, ‘Repräsentatives Dateneigentum’, in P. Kuzev/T. Wangermann (Eds.), *Studie im Auftrag der Konrad Adenauer Stiftung e.V. zum Thema “Einführung eines besonderen Rechts an Daten”*, 2018, available at https://www.kas.de/c/document_library/get_file?uuid=f828a351-a2f6-11c1-b720-1aa08eacff9&groupId=252038 (last accessed 14 September 2020), p. 77.

116 Jones/Tonetti, 2019, *supra* note 48.

117 Metzger/Mischau, 2020, *supra* note 20.

118 Atik/Martens 2020, *supra* note 71, p. 9, pp. 32 et seq.

119 M. Kenney/H. Serhan/G. Trystram, *Digitalization and Platforms in Agriculture: Organizations, Power Asymmetry, and Collective Action Solutions*, ETLA Working Papers No. 78, 23 April 2020, available at <http://pub.etla.fi/ETLA-Working-Papers-78.pdf> (last accessed 24 July 2020).

120 Which all have their trade-offs (Atik/Martens, 2020, *supra* note 71, p. 33). Cooperatives either lose their neutrality over time – or keep them with the trade-off of not providing ‘full service’ (cost advantages will then again depend on the respective bargaining power); cooperation with (independent) large data processors avoid self-preferencing, but cannot avoid new lock-ins.

121 Atik/Martens 2020, *supra* note 71; Schneider 2021, *supra* note 14.

In contrast to the current debate which revolves around contracts and competition, the shift in argumentation towards “access” appears to be a reflection of a shift from binary market relations towards commons. Already in 2004, Yochai Benkler picked up this stream of thought and distinguished goods with high, medium and low granularity, building on Ostrom.¹²² His interest was in “sharable goods” and the gap between the costs of production and the good’s capacity to meet consumption needs.¹²³ His reflection was fuelled by products where the purchaser “gets more than he/she needs”. The conceptual core of his reflection was the “slack capacity”, which he finds in “mid-grained lumpy” goods, and which allows for sharing and pooling.¹²⁴ Benkler’s “granularity theorem” is helpful as far as it re-directs the reflection about data. Even if products cannot be equated with data, there are parallels, and the concept opens perspectives. One parallel can be drawn between “mid-grained” goods and accumulated data. The cumulator “sits” on more data *information* than the company could meaningfully exploit itself. This constellation calls for arrangements which allow access right in order to fully grasp the societal use potential (sharing for re-use). A parallel to “fine-grained goods” would be a contract with e.g. Spotify or Netflix. Here, the customer gets exactly as much as he/she pays for.

Yet, what about raw data? They can be qualified as “fine-grained goods” if the transfer is conceptualised as a barter against the service. But what exactly is transferred? This is at the heart of the contested debate about “data ownership”; it puts the “input question” centre stage. From the preceding literature review, it appears that IP-lawyers presume raw data as public domain, while private law proponents appear to assume an acquisition process where prior entitlements to data (of whatever nature these entitlements are) perish with processing, similar to the ideas underlying § 950 German Civil Code, and time rules such as acquisitive prescription and adverse possession. In this ambiguity, the discussion resembles the one about other types of contested input information such as “Traditional

122 Y. Benkler, ‘Sharing nicely: On Shareable Goods and the Emergence of Sharing as a Modality of Economic Production’, 114 *Yale Law Journal* 2004, pp. 273-358.

123 *Id.*, at pp. 207-303.

124 ‘Fine-grained goods’ have a ‘granularity’ which allows consumers to buy precisely as much of the goods as they want. An example is food. The use value equals the exchange value. By contrast, ‘large-grained goods’ require aggregated demand across many individuals to make the purchase costs effective. The use value of an individual is much, much smaller than the exchange value. An example is a steam engine. With ‘mid-grained lumpy goods’ the consumer gets more of the good as he/she can afford and consumes. The use value for the individual is smaller than the exchange value. These goods have ‘slack capacity’, and are therefore ‘shareable.’

Knowledge¹²⁵ and biomedical information,¹²⁶ which have widely remained unsolved¹²⁷ (in more depth *infra* 4a). Yet, while the legal techniques in IP and classical property law differ,¹²⁸ the economic rationale is congruent: Property shall be assigned to the one who invests and contributes most (and does not stifle¹²⁹) economic growth.

While IP and property law converge as regards the economic rationale, both areas differ as to how they integrate non-economic and non-individual interests. And while the conceptualisation of data is still underway, the legislator is already actively shaping the legal environment. The GDPR grants individuals with regard to personal input information a portability right and a right to be forgotten. Reg. 2018/1807 on non-personal data primarily calls for private self-regulation, but it does already stipulate a “porting right”. Public sector information is framed by two directives, Dir. 96/9/EC,¹³⁰ and Dir. 2019/1024¹³¹ (repealing Dir. 2003/98/EC¹³² with effect from 17 July 2021). The latter turns away from the proprietary approach and provides for access rights for the data categories covered.¹³³ Thus, data entitlements are already existing. However, our understanding of the inherent balance between public and private interests, and between recognition of (other) interests and the fostering of entrepreneurial activity is lagging behind. This problem it not adequately grasped by the debate about the economic value of input data. At stake are values such as autonomy, recognition, self-determination, self-subsistency, and the question who benefits from publicly financed data. To which extent is data “public”? This raises the question of the systematic value of raw data which unfolds a public dimension and involves

125 Knowledge held by collective entities, a category not acknowledged by Western law (see for a comparative screening and G. Van Overwalle’s analysis for case 10 in C. Godt et al (2021), *supra* note 24. Yet, Western property systems can overcome this *problematique* by a conflict of laws approach, Godt, 2007, *supra* note 32, p. 123; C. Godt, ‘Enforcement of Benefit-Sharing Duties in User Countries’, in E. Kamau/G. Winter (Eds.), *Genetic Resources, Traditional Knowledge and the Law*, London, Earthscan, 2009, p. 419.

126 To which claims in the various European jurisdictions are regulated either as individual or collective interest, see Comparative Remarks for Cases 10-13 in C. Godt et al., 2021, *supra* note 24.

127 Concomitant with ethical issues: Is the individual entitled to a share of commercial benefits and to economic damages once his/her rights get violated? While the paradigmatic case dates back to 1990 (*Moore*), the debate is still ongoing, see A. Clarke, *Principles of Property Law*, Cambridge, Cambridge University Press, 2020, pp. 308-325.

128 In § 950 BGB the ‘incoming’ object/information gets ‘appropriated’ (‘absorbed’), in copyright, prior titles get ‘cut-off’ (do have no influence on the later creation), in patent law, discoveries and mathematical theories are excluded from patentability from the beginning (while sequential ‘proprietary titles’ are aligned via the ‘dependency principle’).

129 This is the assumption of patent exclusions for discoveries and mathematical theories, see Godt 2007, *supra* note 32, p. 26.

130 Dir. 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ 1996 L 77, pp. 20-28.

131 Dir. 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information (PE/28/2019/REV/1), OJ 2019 L 172, pp. 56-83.

132 Dir. 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information, OJ 2003 L 345, pp. 90-96.

133 Guibault, 2021 (forthcoming), *supra* note 77, p. 18.

public interests.¹³⁴ How can these relationships be conceptualised, and what are the consequences? Before I submit a proposal (4.), we will look into some selected cases first (3.).

3 CASE STUDIES

3.1 Agricultural Data

Recital 9 Reg. (EU) 2018/1807 refers to “data on precision farming” as an example of non-personal data. Yet, detached from the legal bifurcation of personal and non-personal data, does industry, as reported by the European Commission, distinguish three types of data as follows:¹³⁵ (i) farm data (from particular farms via sensors, machines or directly about farmers), (ii) complementary data (such as weather, satellite and other environmental data, including precipitation events, evapotranspiration, and heat unit accumulation), (iii) proprietary data (about agronomic inputs performances such as seeds or pesticides).¹³⁶ While farm data is submitted to transatlantic standardisation (so called ISOBUS¹³⁷), the attribution of these data-sets slightly differs between the EU and the US, each having set up Codes of Conduct¹³⁸ aimed at enhancing the bargaining power of farmers. For farm data, the US Chapter assigns “ownership” to “the farmer”;¹³⁹ complementary data, *argumentum e contrario*, is (appropriable) public domain information; proprietary data appears to be conceived as business secret. The European equivalent (despite earlier demands¹⁴⁰) does not use the term “ownership”; it assigns “the exclusive right to licence access to the data and control its downstream use or re-use” to “the originator”. This term refers to the machinery,¹⁴¹ and it is not clear if the originator is the owner of the device,

134 Rightfully stressed by Scassa, 2018, *supra* note 55, p. 2.

135 *Bayer/Monsanto* (Case M.8084) Commission Decision of 21 March 2018, C(2018) 1709 final, para. 2453.

136 The different flows of data is visualised by P. Noack, *Precision Farming – Grundlagen und Anwendungsfelder*, Berlin, Wichmann, 2018, p. 19.

137 Norm ISO 11783, for more technical description *see id.*

138 US Privacy and Security Principles for Farm Data 2016, and EU Code of Conduct on agricultural data sharing 2018, thoroughly juxtaposed by Atik/Martens, 2020, *supra* note 71.

139 These terms are similar to those used in the automotive sector where, on paper and as default rule, “data belongs to the vehicle owner”, Ritter/Mayer, 2018, *supra* note 5, p. 245.

140 M. Kritikos, *Precision Agriculture in Europe: Legal, social and ethical considerations*, Brussels, Scientific Foresight Unit of the European Parliamentary Research Service, 2017, available at [www.europarl.europa.eu/RegData/etudes/STUD/2017/603207/EPRS_STU\(2017\)603207_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2017/603207/EPRS_STU(2017)603207_EN.pdf) (last accessed 14 September 2020), p. 47.

141 The machinery is equipped with ‘sensors’ and ‘actuators’. Sensors collect data on mechanical movements and navigation position of the machine. Actuators use data inputs to activate mechanical movements and steer the machine.

the device controller or the farmer who has rented the device.¹⁴² Eventually, the clear point of departure in the US and the unclarity in the EU are irrelevant since both Chapters recognise alienability. In the US, Monsanto Software contracts for Fieldview limit portability to other users of the same software. Hardware and software are licensed, not sold. The hardware is to be returned at the end of the contract.¹⁴³ In the EU, “portability” is secured (but also limited) to changing services (Art. 6 Reg. 2018/1807 thus stipulates a “porting right” only); anonymized and aggregated data (thus data which is “no longer specifically identifiable”) is exempt. As a matter of consequence, the legal differences do not matter *in practise*, since contracts override default principles, legal transplants from the GDPR remain mute, and transferability is in practise not only accepted, but often imposed to the provider.¹⁴⁴ Problems have been reported as to the transfer of behavioural and on-site data to third parties (manufacturers, insurers).¹⁴⁵

3.2 Platforms and Databases

Large databases can be exclusive or publicly accessible. If data sets enjoy proprietary *sui generis* protection under Dir. 96/9/EC is a contingent question. The Court restricted the emergence of the database right in *British Horseracing* 2004,¹⁴⁶ and adjudicated little afterwards.¹⁴⁷ The central question which is distinct from the emergence of the right is the question of access. The originators are now given “retrieval rights”, either for control, or for porting to another processor. Public discussion has shifted to third parties’ right for “re-use”. While re-use got regulated in three service sectors (see above), the triangular situation is largely unresolved. As far as the projected use by the third party is covered by the data originators prior informed consent (“PIC”) and the transfer as such authorised

142 Atik/Martens, 2020, *supra* note 71, p. 21; also Deloitte Study 2017, *supra* note 20, pp. 223, 224; a true problem when considering the different technical devices contracted for in digital farming, for a practical account see the comparison of data generated by multicopters (aerial vehicles) and ground sensors in winter wheat cultivation, see C. W. Zecha, *Spatial Combination of Sensor Data deriving from Mobile Platforms for Precision Farming Applications*, PhD-thesis, University of Hohenheim, 2019, available at http://opus.uni-hohenheim.de/volltexte/2019/1629/pdf/PhD_Thesis_CWZecha_2019.pdf (last accessed 14 September 2020).

143 Para. 3.4 Climate Fieldview™ Terms of Service, available at <https://climate.com/fieldview-terms-of-service> (last accessed 24 July 2020).

144 Atik/Martens, 2020, *supra* note 71, pp. 34; for a competition law perspective on the Bayer/Monsanto Merger see C. Atik, *Understanding the Role of Agricultural Data on Market Power in the Emerging Digital Agricultural Sector: A Critical Analysis of the Bayer/Monsanto Decision*, 2020 (DOI:10.13140/RG.2.2.21178.00962), last accessed 30.9.2020.

145 Deloitte Study 2017, *supra* note 20, p. 225.

146 Judgement of 9 November 2004, *Case 203/02, British Horseracing Board v. William Hill Organisation Ltd*, ECLI:EU:C:2004:695; Judgement of 9 November 2004, *Case 46/02, Fixtures Marketing Ltd v. Oy Veikkaus Ab*, ECLI:EU:C:2004:694.

147 Guibault, 2021 (forthcoming), *supra* note 77, p. 19 with an analysis of later case law.

in advance, it might be legitimate to submit the transfer to a bilateral agreement (submitted to power imbalances). Where, however, the data set entails proprietary data or the use goes beyond the consented use scope, both parties have to renew prior informed consent of the originator.

Yet, the question of *sui generis* protection got side-lined since the CJEU acknowledged mere factual control (including the contractual restrictions) in *Ryanair*.¹⁴⁸ The case revolved around access of a price comparing platform to Ryanair’s publicly available dataset which includes prices, flights and timetable information. Ryanair had posted that it excluded access consent for commercial re-use purposes. In a contested judgement, the Court ruled that in cases where the directive does not apply also the exemptions to the exclusive right for “lawful use” are not applicable. As criticised by Guibault, this ruling “disregards the balance mechanisms built in IP legislation, and effectively reinforces the primacy of public ordering through contracts.”¹⁴⁹

This problem is exacerbated when it comes to exclusive databases which exist today in all sectors. Due to their industrial (secretive) nature, little empirical data is available, and – beyond the agricultural sector – only few publications.¹⁵⁰ With regard to “portability”, literature purports “effective arrangements” in the automotive sector, the energy sector and the banking and payments services, and in agriculture.¹⁵¹ Yet, the quest for standards for access, interoperability and data quality have become the central issues of the debate of how digitalisation can be advanced.¹⁵² The regulator responded: porting rights also for non-personal data in general have to be secured for consumers and businesses alike by member states effective by 30 May 2021.¹⁵³ Thus, where service providers process machine generated maintenance data for the owner of the machine (e.g. combustion engines data in large vessels in order to coordinate repairs on the travel way of the vessel, or elevator use data in order to manage security checks), the possibility for the machine owner to transfer data to another service provider is prospectively secured. With regard to access for re-use, specific regulation exists for the automotive sector (though selectively),¹⁵⁴ and

148 Judgement of 15 January 2015, *Case 30/14, Ryanair Ltd v. PR Aviation BV*, ECLI:EU:C:2015:10 (concerning ‘screen scraping’).

149 Guibault, 2021 (forthcoming), *supra* note 77, p. 19.

150 An informative exception is the Deloitte Study 2017, *supra* note 20, which includes a survey of ten sectors. 151 Yet improbable, cp. Atik/Martens, 2020, *supra* note 71, p. 34 et seq.; A. Metzger, 2020, *supra* note 66.

152 See Deloitte Study 2017, *supra* note 20, pp. 330, 331 just for an example the energy sector: access is asked for to both private and public data banks; quality in data is described as “non-duplicative, complete, real-time”. More: T. Hoeren, ‘Big data and the legal framework for data quality’, 25 *International Journal of Law and Information Technology* 2017, pp. 26-37.

153 Art. 4 sec. 3 Dir. 2018/1807, OJ 2018 L 303, p. 59.

154 Car maintenance data are to be made accessible to independent repair shops under Reg. 715/2007/EC (OJ 2007 L 171/1) on FRAND-terms; yet, in reality the problem appears to be most acute in this sector, see Deloitte Study 2017, *supra* note 20, p. 63.

for banking and payment services.¹⁵⁵ Cross sectorial contracts on data transfer are known for car automotive generated data between car manufacturers and insurers.¹⁵⁶ It is the re-use issue which the commission scrutinizes for misuse, and for which it actively encourages “codes of conduct”.¹⁵⁷

3.3 Public Sector Data

Looking at public sector data brings us closer to the question of what the nature of input data is. Public sector information is framed by two directives, Dir. 96/9/EC and Dir. 2019/1024.¹⁵⁸ Art. 3 in conjunction with Art. 13 Dir. 2019/1024 provide for access rights to listed high-value public data-sets (Annex 1: geospatial, earth observation and environment, meteorological, statistics, companies and company ownership, mobility). This directive reverses CJEU-adjudication in *Compass-Datenbank*¹⁵⁹ and *Freistaat Bayern*¹⁶⁰ on Dir. 96/9/EC, and turns away from the proprietary approach. In contrast to its preceding Dir. 2003/98, Dir. 2019/1024 gives priority to the re-use of public sector information over the public body’s IP right. It also extends the “principle of open by default” to research data, which is considered by most member states as “property” of the public institution, Art. 10 Dir. 2019/1024. Thus, the directive re-installs the general public’s access to what most people perceive as (collected) “public domain” material.¹⁶¹ In this regard, a comparative account of public sector information in various EU member states is most informative for their differing rationales. While in some jurisdictions, private property for public institutions is taken for granted (burdened only by researchers’ freedom), public finance correlates with public access and remuneration restrictions with an outspoken policy to provide access to as many people as possible.¹⁶²

155 Dir. 2015/2366/EU on payment services in the internal market, OJ 2015 L 337/35, (so called ‘PSD2’), which replaces Dir. 2007/64/EC, made service like ‘Apple pay’ possible; further description of how financial SMEs and start-ups use it: Deloitte Study 2017, *supra* note 20, p. 242.

156 A. Metzger, ‘Digitale Mobilität – Verträge über Nutzerdaten’, *GRUR* 2019, pp. 129-136.

157 European Commission, ‘A European Strategy for data’, COM(2020) 66 final, 19 February 2020; *Id.*, ‘Towards a Common European Data Space’, COM(2018) 232 final, 25 April 2018; *Id.*, ‘Building a European Data Economy’, COM(2017) 9 final, 10 January 2017; on all three Kim, 2021 (forthcoming), *supra* note 84.

158 *Infra* fn. 126 and 127.

159 Judgement of 18 July 2012 in *Case 138/11*, ECLI:EU:C:2012:449. A private entity requested access to the company register created and maintained by the Republic of Austria based on Art. 102 TFEU. The legal question was if Austria’s licencing activities were to be qualified as ‘an undertaking’ within the meaning of Art. 102 TFEU, a proposition denied by the Court. The result supported Austria’s argument to have a databank right under Dir. 96/6/EC, OJ 1996 L 77/20 (its preconditions were not inquired by the court).

160 Judgment of 29 October 2015 in *Case 490/14*, ECLI:EU:C:2015:735. The Freistaat Bayern claimed injunction against a publisher for unlawfully using topographic maps, appropriating underlying data and producing touristic maps, relying on its databank right under Dir. 96/6/EC, OJ 1996 L 77/20.

161 Guibault, 2021 (forthcoming), *supra* note 77, p. 18.

162 See Godt *et al.*, 2021 (forthcoming), *supra* note 24, comparative remarks on case 4.

Yet in practise, weather, satellite and other environmental data, including precipitation events, evapotranspiration, and heat unit accumulation is then “owned by the party that purchases the data, e.g. in case of data on weather forecasts, the data is purchased by a software provider and transformed into an easy-to-use application for farmers”.¹⁶³

3.4 *Corona Apps, E-health Apps*

In a recent article, Sjef explores Corona Apps, and reflects about them as a specific form of e-health apps.¹⁶⁴ The important teaching of this article is the complex interest structure of these data. The information of a person infected by the corona virus is evidently not only purely personal information for which the infected person can claim data protection. Evidently, it is personal information of any person who met him or her. For the case of the German corona app, it is only the contact data collected by way of Bluetooth which is decentrally collected on the smartphone, and pseudonymized numbers are stored. Beyond, legitimate public health concerns exist (to be communicated and processed by public agencies). Sjef also acknowledges interests of the pharmaceutical industry and insurers, even discusses the eminent domain of territorial states. The article sheds a spotlight on the complex public nature of data.

3.5 *Interim Conclusion*

These limited examples show two things. First, the assignment of non-personal data to the factual controller is not evident. Possession may result in factual control. However, the examples show that actors in the field attribute the original title to the data provider (the contractual terms demand transfer of title, for both personal and non-personal data). The actors’ language implies that the legitimate (“better”) title does not rest with the processor/the possessor in the first place, as courts have assumed (also against contractual terms, cp. *supra* re *Ryanair*, stipulated exemptions not applicable) resulting in overridden re-use interests and retrieval rights. Yet, more recent EU legislation has paved the way to assign specific entitlements to the originator and to third parties. These recent developments dismantle the property language as simplistic, sometimes manipulative. It becomes evident that the language is used in two ways. Originators use classic property language (*rei vindicatio*) to counter the processors control, and processors use IP language to counter data originators demands (qualifying their information as “public domain”).

163 Deloitte Study 2017, *supra* note 20, p. 223.

164 Van Erp, 2020b, *supra* note 1.

Second, legislation has already installed fragmented property rights. The one “who owns” may be entitled to specific rights, e.g. retrieval rights, access (re-use), use rights. These rights are of different nature and mirror different legitimations for each entitlement. In the retrospect, the Lockenean “added labour” concept (which, in consequence, would assign full title to the processor) loses persuasive power with regard to data. Recent opposition by economists, competition lawyers and consumers support the proposition that the contrary may be true. Also a focus on innovation (either with reference to anticommons¹⁶⁵ or to competition and existing access rights¹⁶⁶) might equally prove too narrow. A second look reveals a more complex topography of data where public and competing private interests overlap.

These insights must have to be absorbed by the design of the future data constitution.

4 ELEMENTS OF THE DATA CONSTITUTION

4.1 Preliminaries

How does a data constitution for a just, political equal, in a liberal sense free and economically prosperous society look like? As a starting point, the metaphor of “data as new oil” has to be taken more seriously.¹⁶⁷

As to the object, the qualitative descriptions of “renewability” or “re-use” signal fundamental differences compared to the classical commodities. These qualifications tend to limit data to their immaterial, inexhaustible, non-rival qualities, and bring the debate home to IP law. However, this framework oversees the societal public dimension of data. Buzzwords such as smart cities/houses/energy, robots for elderly care (“e-care”), facial recognition, social scoring, aerial postal delivery, medical applications (“e-health”), e-mobility delineate the playing field, but neglect data as “building block” of the digital

165 Kim, 2021 (forthcoming), *supra* note 84, referring to the discussion when too much or too many property rights impede innovation, with reference to the seminal papers of M. Heller/R. Eisenberg, ‘Can Patents Deter Innovation? The Anticommons in Biomedical Research’, 280 *Science* 1998, p. 689., and M. Heller, ‘The Tragedy of the Anticommons: Property in the Transition from Marx to Markets’, 111 *Harvard Law Review* 1998, p. 621, on both Godt, 2007, *supra* note 32, p. 550.

166 Ullrich, 2019, *supra* note 5, p. 29.

167 Scassa, 2018, *supra* note 55, p. 1.

economy.¹⁶⁸ This is why Sjef calls for a more profound reflection of the “hybrid world”;¹⁶⁹ something which is also caught in Ingrid Schneider’s “four models”.¹⁷⁰ These works call for a normative re-virement. In future deliberations, Mancuso’s analysis on the different types of collective and diffuse interests might prove helpful to better understand the dimensions of data publicness.¹⁷¹ This exercise will help to reflect about the *nature* of data, beyond the three specifications of the current debate (supra 2). “Publicness” refers to a disruptive characteristic of the changing society which cannot be built solely on exclusive property as we know it. A gear shift is needed, comparable in weight with accepting incorporated firms as “legal” persons, and putting them on a par to natural persons by the end of the 19th century. I submit that it is the “public connotation” which is the driving force of the digital societal change. This is why Sjef’s reflections on property *structures* in data are much closer to the challenge ahead of us.

Publicness demands legitimisation. Two dimensions should guide our reflection, prosperity and social freedom. With John Rawls, legitimate wealth generation demands that efficiency gains which result in economic and social inequalities as a consequence of a capitalist division of labour finance redistributive policies.¹⁷² Profits based on data use are either to be taxed or profits have to be shared in other ways with the (raw) data providers. With Polanyi, capitalist markets will only deliver societal freedom, when market institutions are re-embedded in societal institutions. Considering that data is as much a “fictitious commodity” as land, labour and money,¹⁷³ society as a whole has to “to use the instruments of democratic governance to control and direct the economy to meet our individual and collective needs”, as Fred Block rephrases Polanyi’s central theme.¹⁷⁴ The consequence for a data constitution is that we reflect about on how data entitlements are framed by entitlements of and responsibilities vis-à-vis others.

168 The CJEU Cases 434/15, *Elite Taxi* (ECLI:EU:C:2017:981), 320/16, *Uber France* (ECLI:EU:C:2018:221), and 390/18, *Airbnb Ireland* (ECLI:EU:C:2019:1112) shed light on the public policy ramifications of regulative public transport and housing policies which may override (either by EU or national regulations) the general regulations on service liberalisation. M. Inglese, *Regulating the Collaborative Economy in the European Union Digital Single Market*, Cham, Springer, 2019, p. 34 rightfully describes the status quo as ‘piecemeal approach’ paving the way to future litigation in other service sectors. If it “undermines” (p. 34) the completion of the EU’s Digital Single Market remains to be seen.

169 Sjef enjoys challenging his students when he exposes to them: “You are data!”.

170 Schneider, 2021 (forthcoming), *supra* note 14: (1) The collective/private model (micropayments), (2) state ownership, (3) commons, (4) trust.

171 R. Mancuso, *Interesses difusos: conceito e legitimação para agir*, 7th ed. São Paulo, Revista dos Tribunais, 2011.

172 J. Rawls, *A Theory of Justice*, Harvard University Press, 1971. Where IT-companies do not contribute by way of withdrawing from paying taxes, this liberal manifest becomes more and more hollowed.

173 K. Polanyi, *The Great Transformation*, reprint 2nd ed., Boston, Beacon Press, 2001 (orig. 1944), Chap. 6, p. 71.

174 F. Block in K. Polanyi, *The Great Transformation*, reprint 2nd ed., Boston, Beacon Press, 2001, p. xxxvii.

Doctrinal elements of the data economy will be “governance” and “fragmented titles”. It does not come as a surprise when social scientists and technicians work on “guidelines on algorithms” and “AI ethics”.¹⁷⁵ These approaches are geared towards securing personal freedoms and freedoms to operate, against both full proprietary discretion and full state control. These debates are in search of governance forms for an emerging data economy. The discussion has shifted to securing “self-sovereign identity” (by way of blockchains),¹⁷⁶ and “data governance”.¹⁷⁷ The general support of these projects gives evidence that society does not accept data control as full proprietary disposition. Freedoms are to be secured, not as in the 18th century, “via” property against the sovereign, but “against” entitlements dubbed “property”. What is needed is, in Sjeffs words, “unbundling”¹⁷⁸ which gives way to a fragmented structure allowing “time management of access”.¹⁷⁹ It is this perspective which demands reforming “property” as a central societal institution for modern societies. Property as an institution has survived the transformation from feudal reign, over the industrial revolution towards the constitutionally embedded property as regulated institution. However, it underwent change. Land today is conceived as private commodity, but few owners can use it as they please. In all legal systems (yet by different doctrines), water use is detached from the title to land. Firms are private entities, but heavily governed by corporate and collective labour law. Financial assets underlie regulation. Neither knowledge nor natural resources are today submitted to the basic appropriation rule of § 950 BGB.

As to methodology, the templates of private property and IP law have to be merged, and be further developed in the light of the already emerging structures. The modern structure of IP-law (fragmented, flexible, input sensitive, public policy balanced) and the power sensitivity which property law has been cultivated for over 200 years (coalesced in values and principles) are to be brought together. Property law should take two central insight from IP law on board. First, for the proper delineation of entitlements is not enough to delimit the object. Residuary rights of upstream input providers, and freedoms of downstream users re-define the content of the entitlement. IP law takes time and the

175 As proposed from the competition law’s perspective by the OECD, *Algorithms and Collusion: Competition Policy in the Digital Age*, Paris, OECD, 2017, p. 50; see also the deliverables of a German Government (BMBF) funded interdisciplinary research project ‘Governance von und durch Algorithmen’ (engl.: Governance of and by algorithms), available under <https://goal-projekt.de/> (accessed 29.9.2020).

176 A. Giannopoulou, ‘Data Protection Compliance Challenges for Self-sovereign Identity’, in J. Prieto *et al.* (Eds.), *Blockchain and Applications: 2nd International Congress*, Cham, Springer, 2020, pp. 91-100; B. Bodo/A. Giannopoulou, ‘The logics of technology decentralization – the case of distributed ledger technologies’, in M. Ragnedda/G. Destefanis (Eds.), *Blockchain and Web 3.0: Social, Economic, and Technological Challenges*, London, Routledge, 2020, pp. 114-129.

177 Schneider, 2021 (forthcoming), *supra* note 14.

178 Van Erp, 2020b, *supra* note 1, p. 23.

179 Van Erp, 2020c, *supra* note 12.

dynamics of data flows on board. This is where traditional property law falls short: It leaves the definition of use rights all to the contractual bargain of the parties, complemented – where necessary – by public regulation. It has neglected its role to theorize legitimate use rights. Where stipulated in regulation, these were accepted as imposed. But use rights in contracts, code of conducts, collective arrangements have not been understood as societal shift from property rules to liability rules (sic. “access”).¹⁸⁰ Second, IP law teaches how “control through the chain” can be limited by doctrine. Effective devices are developed for both bilateral contract relationships and multilateral arrangements (“barriers theory” in copyright, collective societies, clearinghouses, pooling and collective governance of rights).¹⁸¹ Some projects emerged as self-governed industry initiatives,¹⁸² others were induced by regulation,¹⁸³ others emerged from private collective societal action.¹⁸⁴ For all arrangements it is key to identify the individual, the collective, the diffuse, and constitutionally embedded public interests of market-oriented mass societies with regard to data.

Building on these reflections, I submit that five data principles have emanated.

4.2 *Five Data Principles*

4.2.1 **Input Recognition (PIC)**

The first principle that the data constitution has to take on board is the recognition of input data (“access right type 1”). Data, by default, cannot and is not assumed to be “res nullius” or “public domain”. The GDPR and Dir. 2018/1807 already acknowledge prior informed consent (PIC) and retrieval rights which give credit to the value both for the person and for businesses (which encompass delivery of information, control for purpose-compliant use, correction of false second layer analysis, erasure). On the national level, regulations acknowledge clients’ data “ownership” e.g. for energy consumption

180 To pick up the language of G. Calabresi/D. Melamed, ‘Property Rules, Liability Rules and Inalienability: One View of the Cathedral’, 85 *Harvard Law Review* 1972, p. 1089; for a contemporary reflection see D. Wielsch, 2012, *supra* note 31.

181 A. Wernick/C. Olk/M. von Grafenstein, ‘Defining Data Intermediaries – A Clearer View through the Lens of Intellectual Property Governance’, *Technology and Regulation* 2020, pp. 65 *et seq.*, available at <https://doi.org/10.26116/techreg.2020.007> (last accessed 14 September 2020); building on G. Van Overwalle *et al.*, ‘Models for Facilitating access to patents on genetic inventions’, 7 *Nature Reviews Genetics* 2006, p. 143. Ingrid Schneider criticizes that the data originators are not knitted into the architectural fabric, Schneider, 2021 (forthcoming), *supra* note 14, p. 25, note 118.

182 E.g. M. A. Kock/F. ten Have, ‘The “International Licensing Platform-Vegetables”: A prototype of a patent clearing house in the life science industry’, 11 *Journal of Intellectual Property & Practice* 2016, p. 496.

183 Participation Rule for the EU Research Funding Programm ‘Horizon 2020’, commented by C. Godt, ‘Artt. 179-190 AEUV (Forschung, technologische Entwicklung, Raumfahrt)’, in M. Dausen/M. Ludwigs (Eds.), *Dausen Handbuch für Europäisches Wirtschaftsrecht*, München, Beck, 44th complement 2018, paras. 44-70.

184 Most noteworthy the open source movement for software (GPL-License), Creative Commons.

data.¹⁸⁵ As of 2020, it is safe to say that data originators' rights have become acknowledged by law.¹⁸⁶ This recognition rebuts the economic default reflex that that "data has no value";¹⁸⁷ they only have no *commodity* value. As elementary "bricks" for further procession they have a quintessential value.

In legal terms, the entitlement is not simply lost (model § 950 German Civil Code) or absorbed by the subsequent processor (model public domain). Recent laws rather take reference to the dual model of copyright and to structures of data protection (where personal data remains linked to the person). For non-personal data the situation appears still more complex. As far as machine generated data is concerned, the data is rather attributed to the owner of the machine or to the owner of the object tracked (*supra* 3 c and d, mirrored by the fact that service providers require data providers by contract to transfer rights for use and re-use).¹⁸⁸

Beyond the initial PIC and the retrieval (erasure) right, many questions remain to be discussed. How far do consent and determination go? Can withdrawal of consent with regard to personal data be overridden by stipulated processing justifications (Art. 6 GDPR)? Should remuneration be introduced?¹⁸⁹ Despite the fact that Art. 9 GDPR frames how to weigh individual and collective rights in Art. 9 GDPR, there is no cogent graduation of sensitive, pure personal or non-personal nature of data in the sense that the more sensitive the information is to a person the stronger is the determination right.¹⁹⁰ The reason is that the reference points are different. For personal information it is human dignity protected by Art. 1 and 8 EU Charter of Fundamental Rights, Art. 8 European Convention on Human Rights and under national constitutions (such as Art. 1 German Constitution). For business interests, it is the "freedoms to operate", as protected by economic freedoms under internal market rules, competition law, Art. 16 EU Charter of Fundamental Rights and national constitutions (such as Art. 12 German Constitution). Yet, the conceptual issue appears broader. It saddles up to the debate for recognition of "input" information in related fields,

185 As reported by Deloitte Study 2017 (*supra* note 20) for the UK on p. 333.

186 Ground-breaking for this shift in mind-set A. Metzger, 'Dienst gegen Daten: Ein synallagmatischer Vertrag', 216 *AcP* 2016, p. 817.

187 Atik/Martens, 2020, *supra* note 71, p. 8; Schneider, 2021 (forthcoming), *supra* note 14, p. 17.

188 For the agricultural sector *supra* 3c; for the energy sector Deloitte Study 2017, *supra* note 20, p. 333.

189 This proposition of Jaron Lanier is discussed by Schneider, 2021 (forthcoming), *supra* note 14, p. 9, and pp. 16-18.

190 Note the differences in data protection across Europe, and especially with regard to sensitive biomedical data. In comparison, patients and clients are attributed less control about their biomedical data than their general data. Some states only acknowledge only a one-time approval right (no right to revocation), while other do. While purposing for general data is the rule; it is the exception for sensitive medical data. E.g. Germany does not allow purposing; while many other states so, see Godt *et al.*, 2021 (forthcoming), *supra* note 24, comparative remarks to cases 7 and 8. This restriction of personal data sovereignty is legitimized by the research freedom and public health policies.

such as traditional knowledge of communities,¹⁹¹ “property” in genetic resources of provider countries¹⁹² (in Western terms “sovereignty”), biomedical information of patients.¹⁹³ In inverse terms, the debate take reference to limits on the appropriation of chemical compounds,¹⁹⁴ and the contested debate around results emanating from public research.¹⁹⁵ These debates recur to claims to data sovereignty by indigenous peoples,¹⁹⁶ data retrieval rights of private individuals or business machine owners with regard to their “data property”, and they will occur with regard to re-use claims. These rights do not protect the commodity value, but a participatory right in form of a veto position. It is this characteristic which renders them highly-personal, thus mostly non-transferable as commodity (but inheritable).

4.2.2 Re-use Rights

A second principle is acknowledging use rights (“access right type 2”). Evidently, those entitlements to data are not “absolute” in the classical sense; access rights, by their nature, are relative. Neither do they depend on a pre-existing absolute right.¹⁹⁷ Their legitimacy stems from the characteristic of publicness of data, and the economics of the digital economy (inverse proportional returns of production costs and customers; network

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- 191 T. R. Eimer/T. Bartels, ‘From consent to consultation: Indigenous rights and the new environmental constitutionalism’, 29 *Environmental Politics* 2019, pp. 235-256, available at <https://doi.org/10.1080/09644016.2019.1595884> (last accessed 14 September 2020); T. R. Eimer, ‘What if the subaltern speaks? Traditional knowledge policies in Brazil and India’, 41 *Third World Quarterly* 2019, pp. 96-112, available at <https://doi.org/10.1080/01436597.2019.1650639> (last accessed 14 September 2020); T. Kiene, *The Legal Protection of Traditional Knowledge in the Pharmaceutical Field: An Intercultural Problem on the International Agenda*, Münster, Waxmann, 2011; Dreier, 2021 (forthcoming), *supra* note 76.
- 192 J. Reichman, ‘Why the Nagoya Protocol to the Convention on Biological Diversity Matters to Science and Industry Everywhere’, in C. Correa, X. Seuba (Eds.), *Intellectual Property and Development: Understanding the Interfaces – Liber amicorum Pedro Roffe*, Singapore, Springer Singapore, 2019, pp. 295-314.
- 193 On the diverging constitution of this information among European countries, see comparative remarks to case 7, in Godt *et al.*, 2021 (forthcoming), *supra* note 24.
- 194 S. Merenyi, *Der Stoffbegriff im Recht*, Tübingen, Mohr Siebeck, 2019; S. Merenyi, ‘Stoffschutz im Internationalen Jahr des Periodensystems’, *Zeitschrift für Geistiges Eigentum*, 2020, pp. 42-92.
- 195 Godt, 2007, *supra* note 32.
- 196 Canada: First Nations Information Governance Centre (FNIGC), *Ownership, Control, Access and Possession (OCAP™): The Path to First Nations Information Governance*, Ottawa, FNIGC, 2014, available at https://fnigc.ca/sites/default/files/docs/ocap_path_to_fn_information_governance_en_final.pdf (last accessed 14 September 2020); and Inuit Tapiriit Kanatami (ITK), *National Inuit Strategy on Research*, Ottawa, ITK, 2018, available at <https://www.itk.ca/wp-content/uploads/2018/03/National-Inuit-Strategy-on-Research.pdf> (last accessed 14 September 2020); United States: US Indigenous Data Sovereignty Network, online: <http://usindigenousdata.arizona.edu>; New Zealand: Maori Data Sovereignty Network, online: www.temanara-raunga.maori.nz; Australia: the Maiamnyri Wingara Aboriginal and Torres Strait Islander Data Sovereignty Group is active on these issues.
- 197 Rightfully stressed by J. Drexler, *Designing Competitive Markets for Industrial Data – Between Propertisation and Access*, 8 *JIPITEC* 257 (at 291, para. 184).

externalities).¹⁹⁸ The necessity to grant access rights is currently strongly driven by competition concerns,¹⁹⁹ either for creating new markets or containing market dominance. As envisioned by the ALI-ELI principles (*supra* fn. 109), the access right for re-use is conditioned by a prior relationship which justifies access (“co-generation”) or competition needs as regard to a bottle-neck situation. Yet, the threshold of granting an access right cannot only be determined by the measures of competition law (“dominant position”), as Axel Metzger seems to argue.²⁰⁰ The threshold is dependent on the “publicness” of the data set.

Be it for competition reasons or for the intrinsic interests of re-users, the scope of access rights depends on the scope of the collective qualities of the data, the commercial character of a given data, and the structure of the division of labour in the given sector. Their legitimacy rests on economic (individual and collective rights to operate) and public interests (such as industrial policies). Building on research about the sequential character of progress in research driven industries,²⁰¹ competition lawyers have called for access rights (sharing rights),²⁰² and advise the European Commission to support self-governing arrangements. They advocate standards of interoperability when collecting data and the definition of access entitlements. The European Commission responded swiftly.²⁰³ The next step is to find a standard for when access is to be granted to continuous data.²⁰⁴

Aside of direct claims, trusted third parties/trustees/stewardships have been proposed and in some cases tested.²⁰⁵ The German Data Ethics Commissions called for sectorial pilot projects.²⁰⁶ Various governance options in order to mitigate competing interests are

198 Cr mer/Montjoye/Schweitzer, 2019, *supra* note 98, at p. 2. With regard to network externalities they explain: “The convenience of using a technology or a service increases with the number of users that adopt it.”

199 For the European debate see Cr mer/Montjoye/Schweitzer, 2019, *supra* note 98 for the German debate see Draft proposal for the 10th Revision of the German Law against Competition Restraints (GWB), <https://www.bmw.de/Redaktion/DE/Downloads/Gesetz/gesetzentwurf-gwb-digitalisierungsgesetz.pdf>.

200 A. Metzger 2020, *supra* note 66.

201 S. Scotchmer, ‘Standing on the Shoulders of Giants: Cumulative Research and the Patent Law’, 5 *Journal of Economic Perspectives* 1991, pp. 29-41.

202 Cr mer/Montjoye/Schweitzer, 2019, *supra* note 98.

203 The catch word is ‘FAIR = Findable, Accessible, Interoperable and Reusable’, European Commission, ‘White Paper on Artificial Intelligence – A European approach to excellence and trust’, Brussels, COM(2020) 65 final, 19 February 2020, p. 8, as proposed by the Expert Group on FAIR Data, *Turning FAIR into reality – Final Report and Action Plan*, Brussels, European Commission, 2018, available at https://ec.europa.eu/info/sites/info/files/turning_fair_into_reality_1.pdf (last accessed 14 September 2020), and negotiated under the roof of the OECD, <https://www.oecd.org/going-digital/ai/principles/>.

204 Cr mer/Montjoye/Schweitzer, 2019, *supra* note 98, p. 107.

205 Some are listed in Schneider, 2021 (forthcoming), *supra* note 14, pp. 22-25; for initiatives in the agricultural sector see Atik/Martens, 2020, *supra* note 71, pp. 32 *et seq.*; for proposals in the automotive sector: Metzger/Mischau, 2020, *supra* note 20.

206 The German Data Ethics Commission (GEK), 2019, *supra* note 6, p. 134.

discussed.²⁰⁷ The problems with building up these structures is the classical collective action problem (sic motivation),²⁰⁸ and structural “co-opetition” trade-offs between competition and cooperation.²⁰⁹ Yet, cultural preferences might also be taken into account. The French tradition tends to work with co-ownership constructions for overlapping entitlement, the German traditions tends to prefer the assignment of “absolute” positions which are moulded into arrangements which force parties into negotiations.²¹⁰ In IP-law, the dependency principle which grants full proprietary injunction power to both subsequent patent holders is an example for the German template. It is up to the regulator to devise sectorial arrangements which fit the needs.

4.2.3 Scoping Private Sovereignty

The third principle is “Scoping Private Sovereignty”. “Private Sovereignty” substitutes the word “ownership”. “Private Sovereignty” implies limited autonomy and fragmentation. “Private sovereignty” is closer to the use of the term “property” in the common law tradition, and appears open for an autonomous European re-definition. While common law lawyers would agree that the factual control of the processor is a “proprietary entitlement”, continental lawyers would deny. “Private sovereignty” is the power of the individual to dispose of and manage his/her data entitlement. Thus, a processor who acquired data is free to use, accumulate, analyse, sell it in the limits of the prior agreed terms and adjacent regulations. The processor may “add labour and investment”, and sell the processed product with profit. The central difference to classical commodities is the following. Access entitlements remain in place and do not perish. The “adding of labour” has no effect as to full title acquisition; “access right type 1” do not fully perish. The pooling of data may transform former individual entitlements into something like a common which again gives way to “access rights type 2”. Both types of limitations, though, are familiar to IP-lawyers.

For property lawyers, respective limitations are reflected in Locke’s acquisition theory for natural resources. Locke argues that legitimate extraction is bound to provisos (no spoiling, only as much as necessary).²¹¹ Natural resources can be compared with pooled data to the degree that common’s nature of data collections stems from the input of many, while with natural resources the common nature is based on conflicting use of many. In

207 For design principles in general see Schneider, 2021 (forthcoming), *supra* note 14, last section ‘Datentreuhänderschaft-von der Idee zur Praxis’ (pp. 21-25).

208 Deloitte Study 2017, *supra* note 20, p. 225; Schneider, 2021 (forthcoming), *supra* note 14, p. 25.

209 As Atik/Martens, 2020, *supra* note 71, pp. 33-35 explain, the detrimental lock-in effects which come with proprietary integration often are linked to advantageous services or package deals.

210 E.g. German Federal Supreme Court (BGH) in *Gummielastische Masse II*, decision of 22.3.2005, Doc.No. X ZR 152/03, BGHZ 162, 342; also BGH in *Orange Book Standard*, decision of 6.5.2009, Doc.No. KZR 39/06, BGHZ 180, 312 – which requires the party who is granted a use right has to deposit a security corresponding to the sum demanded by the patent owner.

211 Explained for property law by Clarke, 2020, *supra* note 127, pp. 49 *et seq.*

this regard, similar limitations appear sensitive. The commons’ quality of data collections gives rise to the need of interoperability (to be operationalized by technical standards, either collectively convened [*supra* example 3 c] or publicly imposed²¹²). Thus, access rights are not only a consequence of competition policy needs. They stem from the cumulative nature of the raw data (“publicness”). In the same vein, the general acceptance of non-discrimination standards for algorithms is to be explained both by the communal origin of data and the consequences for affected individuals (comparable to the integration of discrimination standards, which were still rebutted in the 70s, but got finally “internal” private law by way of the direct impact of fundamental rights.²¹³)

In order to give guidance to the legal architecture of data, a general “data act” as proposed by Sjef might be helpful. It would clarify the notion of the various entitlements, and define the connecting points. In addition, it should lay down some limiting rules (*sic* “cut-off points”), such as time limitations, and doctrines equivalent to the exhaustion principle in IP, in order to mutually protect freedoms to operate.²¹⁴

4.2.4 Publicness

The publicness of data gives rise to two separate dimensions, inherent publicness and eminent domain.

Beyond personal data, machine data or data created and funded by the state (discussed above), there is data with an inherent publicness. The number of bees in my garden is not simply a private information, nor the diversity of birds, nor the stratigraphy of the soil layers under my house. The coronavirus app spotlighted this structure (*supra* 3 d). Data has inherent public characteristics. As such, they are often commons.²¹⁵ The central teaching from this observation is the following: data does not simply “miss” commodity characteristics (for being non-rival, non-exclusive) which need to be re-sculptured by law through the assignment of a right to exclude/participation right. There is a public dimension. For personal data, this dimension is captured by the value of privacy as a building block for liberal societies. Non-personal data have a public dimension as far as the freedom to operate is concerned as a value embodied in market economies. I hereby

212 Such as the Payment Services Dir. 2015/2366, OJ 2015 L 337, pp. 35-127.

213 Again a doctrinal development which Sjef was involved in and supported by founding the *European Journal of Comparative Law and Governance*; on the doctrinal shift see A. Colombi Ciacchi, ‘European Fundamental Rights and Private Litigations: Judicial Dialogue and Judicial Governance’, in F. Cafaggi/S. Law (Eds.), *Judicial Cooperation in European Private Law*, Cheltenham/Northampton, Edward Elgar Publishing, 2017, pp. 208-222.

214 On a modern judicial re-reading of “exhaustion” in digital environments see Godt, 2021b (forthcoming), *supra* note 24.

215 Comprehensively about the modern notion of commons building on Ostrom, S. Bailey, *The Common Good in Common Goods-The Decommodification of Fundamental Resources through Law*, Ph.D.-thesis University of Gothenburg, defended 9. June 2020, publication forthcoming.

contradict the position that geographic, morphological and chemical “primary data” of land can be assigned by default to the land owner, as opposed to “computed data”, especially when aggregated with other farmers’ data. While “computed data” seems to be considered in the ownership of the aggregating company,²¹⁶ the claim is that “data collected from farmers should remain the property of the farmers”.²¹⁷ The simplicity of the binary juxtaposition between provider and processor should be opposed. I submit that the farmer *may* hold an entitlement to the geological data, but he/she does not “own” it as he/she does the land – due to the public characteristics of land. He/she is “trusted” with the information. The inherent commons quality may be operationalised as the anchor for participation in the form of remuneration, if the collective is well defined and representation is possible.²¹⁸ Yet, the emerging problem of all these forms of immediate remuneration appears to be collusion. In a case such as “agricultural data”, remuneration would flow from big data processors (e.g. BASF/Monsanto) to farmers representations. I submit that it is preferable to organise “societal participation” via taxes which will be spent under democratic control (and might enhance digital education and profound reflection on conflicts in digital development). The governance of inherent publicness requires a public policy which is entrusted to the state.

Very different from the “state public policies” is “state sovereignty” which some states have claimed about data on their territory.²¹⁹ This approach is embraced for COVID-19 apps e.g. by Australia, a state not suspect of being socialist.²²⁰ This practise coincides with academic propositions such as the one of Evgeny Morozov.²²¹ The underlying idea is “eminent domain”,²²² close to the notion of public property. The European Union has enacted harmonizing regulation, in order to contain policies in this regard.²²³ Yet, the different conceptual (cultural) notions will not be fully discarded this way. Whereas in Germany, public property is a singular and exceptional category encapsulated in public law (and rejected as a special category of “property”), the recently enacted new Belgian

216 Kritikos, 2017, *supra* note 140, p. 17.

217 *Id.*, p. 47.

218 Implied by Schneider, 2021 (forthcoming), *supra* note 14.

219 Van Erp, 2020b, *supra* note 1, p. 9.

220 I owe this substantiation to Sjeff. Section 94 ZC Privacy Amendment (Public Health Contact Information) Act 2020, available at <https://www.legislation.gov.au/Details/C2020A00044> (last accessed 14 September 2020). If Québec conceptualises public health data stored on public health agency as ‘public property’ is an open question.

221 Discussed by Schneider, 2021 (forthcoming), *supra* note 14.

222 Van Erp, 2020b, *supra* note 1, p. 11.

223 Both in general for non-personal data (Reg. 2018/1807, OJ 2018 303/59), and for specific data such as Corona infections, see Commission Recommendation 2020/518 of 8 April 2020 on a common Union toolbox for the use of technology and data to combat and exit from the COVID19 crisis, in particular concerning mobile applications and the use of anonymised mobility data, OJ 2020 L114/7, in more depth van Erp, 2020b, *supra* note 1, p. 9.

Civil Code acknowledges “public property”, and does not limit its management to the state.²²⁴

These conceptual differences have to be taken into account when pondering about “publicness” of data across Europe. Having said this, “inherent publicness” should not be confused with “eminent domain”, “public property” or even “public domain” (*res nullius*).

4.2.5 Legitimacy and Operationalization

Legitimacy of data governance is conferred by external and internal means. Democratic decision making legitimizes public rule making by way of *external* control; transparency and actor’s accountability provides for *internal* legitimation.²²⁵ The external frame is programmed by existing rules, such as Art. 345, 114, Art. 20 EUT/Art. 326 TFEU, and pertinent IP-laws. Internal legitimacy emerges from codes of conduct, standards which respond to economic and non-economic interests and liability rules.

Aside of the “General data act” proposed by Sjef, the complexity of conflicts of interests in data might require further finetuned operationalization by sectorial rules. E-health requires a different balance between highly personal information on the one hand, and public policy on the other hand, compared to the various actors of the automotive sector (repair; e-mobility). Building on experiences in the finance and agricultural sectors, I expect further sectoral regulation emerging for health-related data (building on EC directives such as Dir. 2004/23/EC,²²⁶ Dir. 2006/17/EC,²²⁷ and Dir. 2006/86/EC²²⁸) or energy data. The frameworks for these sectorial rules may differ. Some may remain purely self-regulatory, others may emerge as specific block exemptions under competition law (e.g. for the automotive sector) and others as direct sector regulation.

224 Article 3:45 new Belgian Civil Code (adopted by Parliament on 30 January 2020), defines public property as belonging to the private domain, unless meant to be used in the public domain.

225 Scassa, 2018, *supra* note 55, p. 3.

226 Dir. 2004/23/EC of the European Parliament and the Council of 31 March 2004 on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells, OJ 2004 L 102/48.

227 Commission Dir. 2006/17/EC of 8 February 2006 implementing Directive 2004/23/EC of the European Parliament and of the Council as regards certain technical requirements for the donation, procurement and testing of human tissues and cells, OJ 2006 L 38/40.

228 Commission Dir. 2006/86/EC of 24 October 2006 implementing Directive 2004/23/EC of the European Parliament and of the Council as regards traceability requirements, notification of serious adverse reactions and events and certain technical requirements for the coding, processing, preservation, storage and distribution of human tissues and cells, OJ 2006 L 294/32.

5 CONCLUSION: FRAMEWORK THINKING

The analysis has shown that we neither can nor should escape the discussion on “data ownership”. Yet, the term “data ownership” may not always bring the debate forward, due to unsurmountable conflicts of political interests. Against this background, an academic debate on the rationalities of why and to whom we assign entitlements to data is even more necessary. Established terms should not stand in the way, but be exploited for their historic depth. The aim of the article was to highlight the inherent “public” characteristics of data which shift the balancing exercise to include a broader set of policies and interests in an exercise of framework thinking. The tacit underlying idea is that “data entitlements” (colloquially dubbed as “ownership” or “property rights”) will emerge regardless of a public debate which rejects them. They are already emerging gradually by piecemeal regulation and judicial intervention. We are better aware of these strong unfolding societal forces driven by technological development. As academics, it is our task to observe what is happening, and to accompany the process by way of a conceptual discourse among us. Sjeff, we are looking forward to further inspiration!

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