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# Introducing a property right over data in the EU: the data producer's right – an evaluation

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## ABSTRACT

The article discusses the nature and justification for the introduction of the data producer's right. The European Commission in its efforts to boost the European data economy is contemplating the introduction of an IPR over data. Firstly, the article surveys whether the current EU legal framework grants property rights over data and how the established IPRs like copyright or database protection treat data as the object of property. Secondly, drawing upon property theory the article determines whether the data producer's right can be regarded as a property right at all. Thirdly, the data producer's right is assessed in light of some legal and economic justifications for the introduction of property rights. Considering that the Commission proposed the introduction of the right on the grounds of economic policy, the analysis will endeavor to shed some light on whether the current proposal might achieve the stated goals.

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## Introduction

The growth of the internet brought about the emergence of the global knowledge society. By definition, its existence fundamentally relies on the deployment and use of information. The *sine qua non* of agency in such an environment is access to information flows (Verschagen and Schiltz 2007, 158–159). Data, the elementary building blocks of the information world, are hence increasingly being recognized and valued for the constitutive role they assume. In economic jargon data are being dubbed the 'new oil', owing to their resource-like properties<sup>1</sup> or they are even seen as the very infrastructure underlying the modern digital economy (Haupt 2016; OECD 2015, 181). Although these metaphors can be debated, it is clear that data are now perceived as prized economic assets (Burri 2017, 131). Consequently, in order to succeed in the modern economic environment new technologies and business models rely heavily on large quantities of data.<sup>2</sup> Amazon, Google and Facebook are the digital economy's leaders precisely because of the possibility to access vast amounts of data from their users/customers and employ

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them with their algorithms. This keeps their market performance at a remarkably high level (Sands 2017).

Although clearly recognized for their economic value, from a legal and legislative perspectives data are seen as somewhat of an outlier. The questions of who owns the data, who gets access to them and whether data are something that can be owned in the first place are yet to be settled. The primary concern is that if left unresolved, the encompassing uncertainty would produce large-scale negative effects for the data economy (EC 2017a, 60).<sup>3</sup> One of the possible solutions for resolving these problems is creating a property-type right over data. However, instituting property rights over data comes with its own concerns (Drexl et al. 2016, 2–3).

In the EU, where the use of Big Data and data analytics is still perceived to be at a modest level the resolution of data ownership and access is seen as crucial to help the European data economy grow (EC 2017a, 31). With that in mind, the EU Commission set out to create an appropriate legislative and institutional framework.<sup>4</sup> Over the past years, the Commission has undertaken the initiative by launching large scale consultations, producing publications and proposing and enacting legislation.

There are two core issues pervading the discussion on the data economy. Firstly, there is the concern that the current legislative framework does not provide enough protection and certainty to stimulate the continuous growth of the data economy. Secondly, there is also the concern that access to data, on which the whole data economy is premised, might be impeded with an inefficient implementation of the new rules (EC 2017a, 60–71, 137–138). It is in that context that the *data producer's right*, a right exhibiting the traits of a property right, has been presented as one of the policy solutions. The new right is supposed to resolve both policy concerns, resulting in the stimulation of the data economy's growth as well as contributing to trade facilitation. This position was clearly communicated by the then standing EU commissioner for the Digital Economy and Society, Günther Oettinger (ZfC 2015, 41).<sup>5</sup> However, the proposal was met with skepticism both by some scholars and members of the industry (Drexl et al. 2016; Willems 2017, 323).

It is, therefore, the aim of this article to contribute to the ongoing policy debate. The article's primary goal is to analyze the proposed data producer's right as a property-type right and whether it withstands the traditional economic and legal justifications commonly associated with property as it relates to the EU's proposal. As a precursor to the main analysis, the article will briefly discuss the nature of data, the nature of property rights and survey the treatment of data in the current EU legal framework. The paper will proceed in the following way: Firstly, some definitions of data will be provided. Secondly, the concept of property, including IP and its characteristics will be discussed. Thirdly, a survey of the current EU IP system and its treatment of data and whether it confers any property-type rights over it will be conducted. In addition, a brief overview will be provided on the Member State's judicial and legislative practice in relation to data as a potential object of property. Fourthly, the data producer's right will be presented and assessed whether it connotes the characteristics of a property right. Fifthly, the justifications for the introduction of property rights and IPRs in particular will be discussed. This section will likewise analyze and discuss the pros and cons for the introduction of the data producer's right from that perspective, ending with a conclusion.

## What is data?

Data can be defined in a multitude of ways, very often depending on the sector one observes (Kocharov 2009, 336).<sup>6</sup> However, data at a fundamental level are defined by Ackoff as ‘symbols that represent the properties of objects and events. Information consists of processed data, the processing directed at increasing its usefulness’ (Ackoff 1999, 170–172). Therefore it is quite common that data are defined in their relation to information and knowledge. Another definition of data, including their relation to knowledge proposes that data are defined as uninterpreted symbols; information is data with added meaning; and knowledge is the ability to assign meaning to data in order to gain new information.<sup>7</sup> This trichotomy implies a hierarchy where data are the precursor of information, which is the precursor of knowledge. There is a linear flow between the concepts which also result in added value for the user and holder of the data. These considerations are not merely theoretical, as data in an economic and business context are sought precisely for the purpose of deriving further information and knowledge.

Sector-specific definitions portray a somewhat different picture. Data in the digital world are primarily defined in light of their utility for computers. According to the Information Technology Vocabulary of the ISO/IEC, data are ‘reinterpretable representation of information in a formalized manner suitable for communication, interpretation, or processing’ (IT Vocabulary 2015). Another definition arising out of the digital world, as proposed by Zech, states that ‘data can be defined as machine-readable encoded information’ (Zech 2016, 53). In this context, data are seen as things or objects whose purposes is to enable machines to perform computational functions. Simply put, data make computers useful. However, at least within the ambit of EU law there does not seem to be a legal, EU mandated definition of data (Kocharov 2009, 336). The only definition of data, albeit personal data is found in the GDPR.<sup>8</sup>

In regard to that, an important distinction needs to be made between personal data on the one side and non-personal and anonymized data on the other. Personal data as defined by the GDPR are any data that can identify a person directly or indirectly. Non-personal data and anonymized data are henceforth any data which personal information cannot be derived from. However, this differentiation is often not an easy one to make, as the ability to combine data can result in seemingly anonymized non-personal data being turned into personal (Schneier 2007).<sup>9</sup> Personal data are regulated through a different legal regime and with a different purpose than non-personal and anonymized data. As such they will not be the center of attention of this article.

## Conceptual layers of data

Historically, data and information could hardly be divorced from the tangible medium they were stored on. With the advent of technology, ease of copying and the introduction of computers the necessity to differentiate between the physical carrier of the information, the way it is recorded and its meaning became more apparent. The relevance of this distinction peaked with the mass application of cloud computing as the separation between the three categories was almost absolute (Zech 2015, 192–193). It is therefore important to differentiate data from the three conceptual layers. The first level is called the semantic layer, which encapsulates the human understandable information, also called the

content layer. The second level is the syntactic layer, where information is presented in the form of signs and symbols, also called the code layer. The third level is found in the physical carrier of the information. It forms part of the physical object or it is represented through the structure of the physical object and is also known as the physical layer (Zech 2016, 53–54). These considerations are important when it comes to granting property rights as it is crucial which layer(s) will be the object of the property right. Granting the property right at different conceptual layers can have vastly different consequences for the law. However, before discussing the introduction of property rights, the next section will provide a brief look at the nature of property rights.

## What are property rights?

### *Defining property*

Property rights have been the object of discussion, analysis and attempted definitions by legal scholars over the centuries. Firstly, it has to be said that there is no single concept of property. Historically, stemming from the old Roman law, property rights were primarily associated with tangible objects, ie goods (Hoeren 2014, 751–752). From a contemporary perspective, the classical concept of tangible property rights does not fully correspond with the modern world. Therefore, the discussion arose on how to accommodate new realities and extend property rights from tangible objects over to intangibles (Hoeren 2014, 751–752). It is in this context, that the theory of property has been developed over the past two centuries. It is for that reason that patents, copyrights, trademarks, all protecting intangible carriers of value, are nowadays considered property rights (Carter 1993).

But what is property exactly? There are many definitions of property and it would practically impossible to list and utilize all of them all. However, they naturally revolve around some core and common notions. For example, the Hohfeldian take on property advocates that property is ‘an amalgam of rights, powers privileges and immunities’ (van Erp 2017, 236–237). A similar view is taken by Honoré, who specifies the ‘standard incidents’ comprising the property right (Heller 1998, 663). Hohfeld’s and Honoré’s perspectives have greatly influenced the view of property as a bundle of rights (Penner 1996). A somewhat different focus is presented by Cohen and his interpreter Merrill. They view the property as a type of personal sovereignty over things at which core lies the right to exclude others (Merrill 2017, 420).<sup>10</sup> The different positions taken by the scholars do not necessarily exclude each other, rather they represent different perspectives of the same thing. However, more recently as our view of property has changed to accommodate new paradigms, so too have the offered definitions and theories. Property is no longer exclusively viewed through the Blackstonian concept of the ‘sole and despotic dominion which one man claims and exercises over the external things of the world’ (Blackstone 1765-1769). The conceptualization of property has not only changed to accommodate new objects, but also to give new purpose to property in a societal context. It is from this perspective that Lametti derives his view of property:

Private property is a social institution that comprises a variety of contextual relationships among individuals through objects of social wealth and is meant to serve a variety of individual and collective purposes. It is characterized by allocating to individuals a measure of control over the use and alienation of, some degree of exclusivity in the

enjoyment of, and some measure of obligation to and responsibilities for scarce and separable objects of social wealth (Lametti 2003, 326).

It is the view of the author that such a view of property fits the discourse of the article for two reasons. Firstly, this definition recognizes the social function of property at both the individual and collective ie societal level. It is useful to keep this consideration in mind when addressing economic policy concerns of property which by their nature aim to impact both the individual but broad areas of society as well. Secondly, the definition recognizes obligations and responsibilities which translate to limitations and exceptions of the property rights. When observing property rights from an economic perspective, with an intent on maximizing economic welfare, the property rules require a balance between the rights on the one side and limitations and exceptions on the other. Therefore, the theoretical position which considers both, as this author argues, is suitable to view the data producer's right, one that the EU itself has promoted from an economic policy standpoint (EC 2019).<sup>11</sup>

### ***Characteristics of property rights***

As a preliminary consideration it must be clarified how property rights are structured. Property rights consist of the right(s) as such and the object over which that right exists (tangible or intangible). However, once we start looking into different national legal systems, we will encounter noticeable ontological discrepancies among the content and form of property (van Erp 2017, 235).<sup>12</sup> The differences are manifested both at the level of object and right. It can be argued that the exclusion of third parties is the essential property right, although a much broader set of 'standard incidents' (parts of the property rights bundle) can be recognized:

- (1) The right to exclusive possession;
- (2) The right to personal use and enjoyment;
- (3) The right to manage use by others;
- (4) The right to the income from use by others;
- (5) The right to the capital value, including alienation, consumption, waste, or destruction;
- (6) The right to security (that is, immunity from expropriation);
- (7) The power of transmissibility by gift, devise, or descent;
- (8) The lack of any term on these rights;
- (9) The duty to refrain from using the object in ways that harm others;
- (10) The liability to execution for repayment of debts; and
- (11) Residual rights on the reversion of lapsed ownership rights held by others (Heller 1998, 663).

This list of rights is neither exclusive nor absolute. Ranging from jurisdiction to jurisdiction, or from theory to theory, not all incidents are accepted as parts of the property rights bundle nor are their limits always equally defined (Heller 1998, 663; Lametti 2003, 329–330). Perhaps most importantly the nature of the right depends on the object of the property right (van Erp 2017, 235).

One key characteristic of property rights is that they are *in rem* rights. *In rem* rights are those which operate *erga omnes*. By default, that means every person is bound to respect

the rights stemming from the property (van Erp 2017, 235). In contrast, *in personam* rights are only rights that affect precisely determined persons. A right vested by a contract to a specific person is an example of *in personam* rights. In order to qualify as an *in rem* right a determination must be made by observing two characteristics – *numerus clausus* and transparency. *Numerus clausus* means that there is a limited, defined or definable number of rights that qualify as *in rem*. Moreover, stringent rules dictate the ‘creation, content, transfer and extinguishment’ of the rights, leaving little freedom to third parties to define further rights or their characteristics.<sup>13</sup> Transparency refers to the possibility of third parties having a reasonable opportunity to acquaint themselves with the existence of the property right and its effect (van Erp 2017, 239). This is very much true with the current EU IP system. IPRs are codified in the EU and the Member State’s legislation. The content, transfer and extinguishment, although subject to differences in Member State’s laws, are precisely defined. Therefore, there is no doubt of IPRs falling into this definition of property. But what about data? The EU or its Member States do not provide for legislation that satisfies the criteria set out here. Demonstrably, calling a property right over data in the context of the previously mentioned considerations is not currently feasible. However, when data is the object of different legal regimes it can exhibit some characteristics of property. The next section will address the issue of data being the object of IPRs and related legal fields.

## Data in the current EU and Member States IP and related legal systems

Although there is no express legislation granting property rights over data, several fields of law are relevant for consideration, as they to some extent invariably address data-as-property related matters. It should be noted that personal data cannot be the subject of property protection. The GDPR in line with the European Charter of Fundamental Rights sees personal data as rights subject to special consideration over which no property rights could be exercised (GDPR 2016).<sup>14</sup> As such, the GDPR will not be discussed further. The two most important areas of law for this discussion are database protection and copyright, as these two types of IPRs are the most data pertinent. As data can be the object of trade secret protection, this area will be covered as well. Finally, consideration will be given both to competition law and contract law as pertinent legal fields.

### Database protection

The Database Directive was introduced as a measure to help grow the database industry in the EU (Yu 2010, 780).<sup>15</sup> The EU legislature decided to create a *sui generis* IPR which would incentivize the creation of databases by offering property-type rights to the database makers. According to the Directive “database’ shall mean a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means’.<sup>16</sup> The Directive stipulates that

Member States shall provide for a right for the maker of a database which shows that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents to prevent extraction and/or re-utilization of the whole or of a substantial part, evaluated qualitatively and/or quantitatively, of the contents of that database.<sup>17</sup>



Hence the exclusive right over the database arises when there has been a substantial investment, a threshold, which according to the German Federal Supreme Court, is not hard to overcome (Hugenholtz 2017, 10). A more important issue for the recognition of the right relies on how the data become part of the database. The Directive protects the investment in the data that are obtained, verified or presented but does not protect the investment in the created data. The ECJ (now CJEU) clarified this difference in *British Horseracing Board v William Hill Organization*.<sup>18</sup> However in the context of machine generated data the distinction might not be so easy to make. Whereas activities similar to the ones from *British Horseracing Board* would certainly not qualify for protection, in other instances the situation is not clear. For example, when data are received through measurement sensors, the distinction between gathering and creating data would have to be determined based on the amount of processing the data are subject to (Hugenholtz 2017, 8).

The Directive stipulates that the extraction (copying) and re-utilization (copying and making available to the public) of the whole or the parts of the database should they be considered substantial in either a qualitative or quantitative way is not allowed.<sup>19</sup> Therefore insubstantial extraction and re-utilization are allowed without the consent of the database owner but only if those extractions in sum do not equate to the effects of Article 7(1).<sup>20</sup> These considerations do not affect individual pieces of data, at least in theory. The recitals of the Directive state that the database protection 'does not in any way constitute an extension of copyright protection to mere facts or data'<sup>21</sup> and 'should not give rise to the creation of a new right in the works, data or materials themselves'<sup>22</sup>, therefore clearly limiting the scope of the right. This was confirmed in *British Horseracing Board* with the Court stating that the right's object of protection are not the data themselves but the database<sup>23</sup> and only parts derived from the substantial investment.<sup>24</sup> Coming from these considerations it should be conceded that the protection the Database Directive offers, connotes characteristics of property over databases. It prevents use against all unauthorized persons, albeit with some limitations. Nevertheless, the Database Directive clearly does not confer any kind of property right over singular pieces of data. This distinction is clear. However, in practice, data are consumed in large quantities and their value comes from their volume (Gordon 2013, 12–13). From a practical perspective, the difference between singular pieces of data and data aggregated in databases becomes blurred and property rights considerations might come more into play.

## Copyright

As a matter of theory and principle copyright does not protect individual pieces of data. This claim is based on the idea/expression dichotomy, which lies at the core of copyright theory. Namely, ideas are not protected by copyright. However, the way they are expressed might be. Copyright exists to protect authorship and creativity and not the 'raw' knowledge and information. Copyright rules in the US, the EU and international treaties reflect this view. Although these legal sources make no clear reference to data, by applying the dichotomy, one can conclude that data fall under the category of idea and not expression. Therefore, data cannot be protected by copyright. (Hugenholtz 2017, 7).

Once copyright protection is applied to compilations of data and databases the situation changes. At the international level compilations of data can be protected if they satisfy the general copyright requirements, thus showing creativity or intellectual creation (Hugenholtz



2017, 7).<sup>25</sup> In the EU the Database Directive limits copyright protection of databases solely to the 'selection or arrangement of their contents' and which 'constitute the author's own intellectual creation'.<sup>26</sup> Moreover, the Database Directive strictly prescribes that the copyright protection shall not extend to the contents of the database. As shown in *Football Dataco* the ECJ (now CJEU) stated that copyright protection of databases will not in any circumstance be granted for the creation of the data and the database.<sup>27</sup> Copyright protection can only be granted for the selection and arrangement of the database and only when there is some creative effort present.<sup>28</sup> The protection of technical considerations, which require only skill and labor to be produced, absent any creativity, is not deserving of copyright protection.<sup>29</sup> Therefore the case for copyright protection over data is similar to the database protection albeit much narrower. As there is no copyright over data as such, the only relevant protection is given to creatively and originally arranged databases. From a practical perspective, it is theoretically possible for copyright-protected databases to be used with technologies like IoT or AI. However, the utilitarian value of the data in such a setting does not usually come from its creativity and arrangement.

### **Trade secrets protection**

At the outset, it must be noted that trade secrets protection does not offer a property right to the objects of trade secret protection. Besides some characteristics overlapping with property protection, the directive primarily sets out liability rules for tortious acts (Drexl 2017, 269). The Directive protects the 'unlawful acquisition, use and disclosure of trade secrets'. It strictly defines trade secrets and the qualifying conditions for protection. The subject matter must be secret in the sense that it is not known to persons normally dealing with that type of information;<sup>30</sup> it must have commercial value due to its secrecy;<sup>31</sup> and the person lawfully in control of the information has made steps to keep it secret.<sup>32</sup> However if the information protected by trade secret protection is otherwise lawfully acquired even without the permission of the trade secret holder,<sup>33</sup> the trade secret holder does not have any recourse against the person holding the information. This portrays the *in personam* characteristics of trade secrets protection, unlike the *erga omnes* protection of property rights.

From a theoretical perspective, there is no legal barrier for data to be protected under the Trade Secrets Protection Directive. However, the Directive is already considered outdated, as new developments regarding the European data economy were not taken into consideration during the legislative process (Drexl 2017, 268). For the creation and collection of data, the compliance with the Directive's protection requirements is very much fact-dependent. As Wiebe points out, there are several issues to be considered. On the one hand, it is easily foreseeable that data which are produced internally can qualify as a secret. On the other, any data that are collected by publicly utilized sensors, like the ones on cars, probably fail to satisfy the requirement. Furthermore, it might be hard to establish the causality between the secrecy and commercial value of the data. Although undoubtedly data might have high commercial value, whether their value comes from its secrecy is questionable. Moreover, establishing the steps necessary to keep the data secret in a network environment might also be a difficult task. Finally, allocating the right in a network environment might be extremely complicated (Wiebe 2016,

880). In addition to all of these considerations it must be born in mind that only unlawful access to the data will be sanctioned, therefore limiting the practical scope of protection.<sup>34</sup>

### **Contract law**

Although contract law is very different from property law, contracts can be used to ‘simulate’ legal relationship akin to property protection. This approach can be applied to data as well, owing to some factual considerations. Namely, the way data are recorded, kept and protected, it is often the case that the data holder exercises factual exclusivity. It is from this position of factual exclusivity that the data holder is able to negotiate contracts on data access with other parties (Drexl 2017, 280–284). Moreover, the data holders can and often do contract in certain clauses that limit the way the data can be used and shared (Kerber 2016, 994). In such a way a number of property rights can be simulated. However, these rights remain *in personam*, as only the contractual parties are obliged to follow the contractual rules. If a third-party gains access to the data from the contractual party that had the obligation not to share it, only the contractual party will be held liable and no recourse will be possible against the third party. This is where contractual relationships fundamentally defer from property rights. In practical terms it is primarily through the use of contracts that data access and ownership are *de facto* regulated (Drexl 2017, 272; Kerber 2016, 994).

### **Competition law**

Competition law as a tool can make deep incursions into the domain of property rights. One of the primary characteristics of competition law is that it intervenes with property rights by combating anti-competitive behavior and promoting competition. These dynamics have been known and recognized in the field of IPRs as well. A relevant problem, assuming the similarity between IP and data, is the refusal to grant access which is a form of dominance abuse. It is therefore foreseeable that data holders could be obliged to allow data access under the requirements set out by CJEU’s case law (Drexl 2017, 280–284). However, in such a setting the existence or non-existence of a property right does not play a major role. Data are *de facto* intangible objects of worth, regardless of the property right’s existence. Considering that competition law does not specifically target property rights, rather anti-competitive behavior, granting access to data will not depend on the existence or non-existence of property rights over data.

### **Member states legislation and court decisions**

The previous discussion implies that the current EU legal systems do not confer property rights over data, but also recognizing that there are pertinent adjunct types of property protection or that property protection can be simulated to a degree. Nevertheless, some Member States’ legislation and court jurisprudence offer interesting insights and point to possible doctrinal changes in their practice. Two German Courts ruled on the proprietary aspects of data. The Courts in Nuremberg and Saxony, both ruled on matters of mishandling of data by company employees, albeit in criminal and labor law cases respectively. The Courts came to the conclusion that for the purposes of both fields of law, data

can be owned, thus exhibiting traits associated with property (Hoeren 2014, 752). In the Netherlands, the Supreme Court stated that from the perspective of criminal law digital assets (ie data) could be the object of theft and it recognized that for the purpose of obtaining evidence a database could be the object of seizure (van Erp 2017, 247). Moreover, a recent Luxembourgian law gives the right to reclaim ownership in data from the cloud in bankruptcy proceedings if the circumstances provide for such an opportunity (van Erp 2017, 253–255). Although no property rights as such over data exist, it seems that when faced with lacunae courts are willing to adapt and in certain aspects treat data as property. However, the situation might change noticeably for the courts should a property right over data be introduced in the EU. This realization might happen in the form of the data producer's right and the next section will discuss the proposal.

## Data producer's right

The primary goal of the Commission in the context of the European data economy is to create a legal and institutional framework in which the data economy can grow. In order to achieve this the Commission has identified five objectives: 'Improve access to anonymous machine-generated data; Facilitate and incentivise the sharing of such data; Protect investments and assets; Avoid disclosure of confidential data; Minimise lock-in effects'. One of the framework options to reach those objectives is the 'data producers right for non-personal or anonymized data.'<sup>35</sup> The right, according to the Staff Working Document would be introduced with the intention of 'enhancing the tradability of non-personal or anonymized machine-generated data as an economic good'.

As regards the scope of the right two possibilities have been envisaged. The first option is that the right would be an *in rem* right. As discussed above that right would be enforceable against non-contractual, third parties, in particular for the unauthorized use of the data. Such a right would in fact constitute a property right over data. The alternative proposed by the Commission envisages a set of purely defensive rights. The core of this right would center on the defensive elements provided by an *in rem* right. According to the Commission such a right would 'equate[s] to a protection of a de facto "possession" rather than to the concept of "ownership"'. The Commission proposes a number of civil remedies to be introduced as part of the right. The right holder would have the possibility to seek an injunction in order to prevent further use of the data by unauthorized third parties; the right holder would have the right to exclude products based on the misappropriated data from the market and prevent commercialization; the right holder could also seek damages for the unauthorized use of the data. The characteristics of this proposal point more to tort-liability rules similar to the protection offered by the Trade Secrets Protection Directive.

Referring to the conceptual levels of data the Commission proposes that the right should only be protected at the syntactic level and not at the semantic level. Therefore, the protection would only extend over the code and not the ideas or information (EC 2017b, 30–34). The idea behind this is to grant a property right over some manifestations of data but to avoid information monopolies and the overextension of the right.

In the case of creating an *in rem* right on raw non-personal machine-generated data, the allocation of the right would be determined according to certain criteria. By considering the investment made and resources used for the creation of the data the allocation of

the right could be made to a specific party or parties. Usually, it would be the manufacturers of the sensor devices or the economic operators using the sensors that would fit these criteria. If multiple parties are involved joint ownership could be awarded. However, the Commission recognizes that in complex settings with multiple stakeholders it would be difficult to identify ownership. Therefore, it is more relevant to define access to data than ownership as such (EC 2017b, 34–35; Wiebe 2016). In the alternative, the policymaker could opt for the purely defensive rights. Those rights would protect lawful, *de facto* holders of data. This type of protection would go along with the ongoing technical efforts of the data holders to protect their data against non-contractual third parties. The proposal further states that the legal protection can be made contingent on the existence of technical protection, similar to the Trade Secrets Protection Directive.

In contrast to the exclusivity envisaged by the right, the Commission recognizes that the right might need to have inherent limitations to it. The obligation to share data would depend on who is the right holder and who is requesting access and for what purpose. Both public sector bodies and private parties might need the data for the purposes of functionality<sup>36</sup>, liability<sup>37</sup> or issues of public interest (EC 2017b, 34–36).<sup>38</sup>

It comes from the foregoing that the Commission presents a relatively pragmatic but not too detailed view of its policy solutions. Although the property right is presented as an option, the alternative in the form of the defensive, *in personam*, right is given equal considerations. It seems that even the Commission is not certain whether a strong property right over data would in fact lead to the desired objectives. So, a broader question arises as to when should property rights be created and how do they function in regards to achieving the desired policy objectives? The next section discusses the economic justification of property rights and IPRs.

## **Economic justification for the creation of property rights and IPRs**

A prevalent justification for the creation of property rights and IPRs, can be tracked down to Hardin's 'Tragedy of the Commons' (Hardin 1968). Although the article was written from an environmentally-conscious perspective, the core of the theory addresses the rational and optimal use of resources in society. Hardin invokes the metaphor of a pasture, one open to all (a commons) on which the cattle grazes. Every herdsman, thinking rationally intends on maximizing his own gain, by adding one more animal to the grazing herd. Such an action has both a positive and a negative. The positive of the action is that it increases the prosperity of the herdsman. The negative of it is that it depletes the amount of grass, leading to overgrazing. Whereas the positive effects are fully felt by each herdsman individually, the negative effects of overgrazing are spread among the many and the impact is diminishingly felt. Following this logic, the addition of animals continues, alongside the overgrazing of the pasture. This inevitably leads to ruin as the pasture is a finite resource (Hardin 1968, 1243–1245). This metaphor demonstrates that the unbridled use of resources leads to low efficiency and utility. Therefore, as Hardin implicitly advocates, in such cases the better approach would be to abolish the commons, i.e. privatize them in order to ensure a more efficient use. As private property is a way of solving problems of resource use in society, applying the metaphor seems appropriate (Katz 2017, 325).

In a thematically related but more elaborate and property focused paper, Demsetz wrote about the creation of property rights. According to Demsetz the primary function

of property rights is to create incentives to internalize externalities. He defined externalities as 'external costs, external benefits, and pecuniary as well as nonpecuniary externalities'. He continues by stating '[w]hat converts a harmful or beneficial effect into an externality is that the cost of bringing the effect to bear on the decisions of one or more of the interacting persons is too high to make it worthwhile' (Demsetz 1967, 348). To demonstrate his claims Demsetz uses the historical account of indigenous American tribes and fur traders. Before there was fur trading between the indigenous tribes and settlers, the tribes did not have a distinct set of land property rights. Hunting was done freely, without the necessity to delineate borders, as overhunting did not exist at the time. In such a case the cost of administering the property borders was too high in comparison with the costs incurred by the hunting. However, once fur trading started the demand for fur became high, consequently raising its price and the amount of hunting. It is at this point that the property system changed in order to accommodate the economic realities and private hunting grounds were established (Pejovich 1972, 323–324).<sup>39</sup> Therefore, he argues that when it becomes economically efficient to internalize externalities, property rights arise (Demsetz 1967, 354).

What this account points to is that real-world change and economic circumstances are responsible for the creation of property rights. As Pejovich states, three different instances can be recognized as catalysts for the change and creation of property rights. Firstly, technological change and the opening of new markets require changes in property rights in order to accommodate the new realities. Secondly, changes in both factor scarcities and prices might affect the cost–benefit ratio. This subsequently might require changes in the existing property rights or the creation of entirely new ones. Finally, there is an argument from the perspective of political economy. Political organizations have an incentive to establish property rights to use as policy tools to create, regulate or close markets. This likewise contributes to new taxation opportunities (Pejovich 1972, 314–315).<sup>40</sup> All three instances can easily be recognized in the historical development of IPRs (Dreyfuss and Frankel 2015).<sup>41</sup>

When applying Hardin's and Demsetz's theoretical observations to IP the situation is somewhat different, as it departs from the tangible properties of land or animals. IP protects non-rivalrous and non-excludable objects, ie information.<sup>42</sup> This means that the consumption of already existent information does not deplete them and that information by its nature spreads easily and quickly. Therefore the 'overgrazing' as proposed by Hardin of IP is not possible. For IP 'overgrazing' happens at the level of incentives for information creation. Information creation requires resources and effort, however, due to the previously highlighted characteristics of non-rivalry and non-excludability, it can easily spread and be used by non-creators (Bracha 2018, 640–644). Not needing to invest in information creation, non-creators are always at an advantage over the information-creator. The information commons are overused in such a way which results in the absence of new information creation. Therefore, the justification for the creation of IPRs is a dynamic one. It proposes that by privatizing information and granting property-type rights, an incentive is assured for the future creation of information. This is one of the classical economic justifications for IPRs, patents and copyrights in particular (Demsetz 1967, 359; Leung 2010, 16–17). However, this theory also recognizes that the creation of new information is dependent on access to previous information. Therefore, IPRs are limited both in scope and time, ensuring the release of the information into the public

domain. This ensures the existence of further opportunities for restrain-free information creation.

However, the 'Tragedy of the Commons' has its very pertinent antithesis. Heller dubbed it the 'Tragedy of the Anticommons'. The tragedy of the anticommons envisages a situation where the numbers and relationships of property rights and right-holders are too big, too complex and/or too expensive to be successfully utilized. These hurdles finally result in the underuse and underproduction of the property (Heller 1998).<sup>43</sup> The tragedy of the anticommons manifests itself in IP as well. Heller and Eisenberg observe that the research activity and overall progress of the biotechnological sciences are hampered by the cluttering of patent rights, as many patents are granted on upstream technologies.<sup>44</sup> Would-be inventors of downstream technologies need access to upstream patents for the development and commercialization of their own inventions. However, they often encounter obstacles for obtaining access to those rights. It can be difficult to secure all of the necessary licenses, which in turn leads to high transaction costs for bundling all of the necessary rights. Moreover, licenses usually create restrictions on how the patent can be used, as well as creating subsequent property rights for the licensor in downstream technologies (Heller and Eisenberg 1998, 699–700). It is in such cases that IPRs demonstrate their economic inefficiency.

### ***Justification for the creation of an IPR over data in the EU***

It goes from the previous theoretical and practical considerations that there are several instances when it might be justifiable to create a new IPR over data. Considering that there is no natural law that requires ownership of data, the introduction of such a right should be of a utilitarian nature (Drexl 2017, 260). In line with the EU's competences to introduce new rights, the Commission itself has stressed that the justifications for the introduction of such a right are of an economic policy nature (EC 2019). In order to assess the policy effects two elements should be considered: First, the policy measure will result in the desired change in behavior and second, that change will result in the achievement of the policy objective (Kim 2018, 156). Therefore, the analysis must contain whether the new circumstances brought about by the changes in technology and the market warrant the introduction of a new IPR over data. Following the classical justifications for the introduction of IPRs there are two major questions. The first one is the question of the creation incentive. The second one relates to the efficient use of resources in the market, ie the creation of property rights for improving the functioning of the market.

### ***Incentive issue***

So, does the tragedy of the commons actually fit the justification for an introduction of an IPR right over data? Firstly, it must be observed that data are much more akin to IP than it is to any tangible property. Non-rivalry and non-excludability apply similarly to data as they deal with information or knowledge, which are the subject matter of IPR protection. Therefore, the issue of data overconsumption and 'overgrazing' does not apply. As for IPRs the 'overgrazing' can potentially happen at the level of data production. This is where a comparison and distinction with traditional IPRs must be made. All information and knowledge which are IP protected are by their nature a product of some effort and resource use. Very

often the invested resources and effort are extremely big (Mueller 2011).<sup>45</sup> It is these investments which the IPRs intend to protect, thereby sustaining the incentives to create further. Data do not necessarily fully correspond with this justification. Although undeniably some data creation exerts enormous costs,<sup>46</sup> in the digital world data can often be created at an extremely low marginal cost across the board (May 2019). Therefore, it is at least questionable whether an IPR, especially one that covers all forms of digital data, is justifiable. A more reasonable justification could perhaps be found in an IPR over data that require a lot of resources to be produced (Stendal 2015, 8).<sup>47</sup> However, this distinction is not an easy one to make.

Additionally, one of the aims of IPR is to make IP public for the purposes of commercialization. Data might not fit into this category as it is often created for internal purposes of a business or as a byproduct of other economic or business operations. In such circumstance, data will be collected or produced regardless of its market value later on (Drexel 2017, 288–289). Therefore the incentive to create is different from the incentive justification attributed to IP. Even though this data might be of value to others, their primary purpose is internal, not external.<sup>48</sup> In such cases, the necessity for IP protection over that data does not fully fit the justification.

However, it must be noted that there are business operations with different business models. Some companies produce and collect data with the exact purpose of later exchanging them in the market. The value of the data, in these circumstances, does not come from their internal use in the company rather their value comes from their market tradability. Such businesses can incur big costs in setting up the operation. Some sort of legal protection in order to incentivize the creation or collection of data might in these cases be justifiable (Hartmann et al. 2014, 19–20; Kerber 2017, 117).<sup>49</sup> However, the question arises whether granting IPRs over data is the right answer? As the author holds, the granting of IP protection in such a case is not necessary. Businesses, whether they capture data through external sensors or by capturing data purely through the internet, already have enough legal and factual tools in order to protect their investment. First of all, they can assert factual exclusivity owing to how the data are stored. When technical protection measures are in place, access to the data is not open to unauthorized persons and any illegal access would be addressed through criminal law and/or trade secrets protection. Database protection already exists and although it is usable only in certain cases it does confer protection to some large data sets. Finally, there is contract law which, as the article demonstrates, offers enough possibilities to create property-like protection. These mechanisms offer a number of ways to keep exclusivity over data. Consequently, the valorization of data in the market is made possible, removing fears regarding return on investment and incentives for data creation and collection.

### ***Functioning of the market***

One of the arguments for granting an IPR over data is to create or improve the conditions for the trade of data as goods. In the EU the data market is still in the preliminary stages of development (EC 2017a, 31–32). However, companies are trading in data, despite there being no IPR over it (Kim 2018, 164). As mentioned previously, the currently available tools of contract law and factual exclusivity secure the functioning of the market. In addition, the first mover-advantage creates enough incentive and power to participate in the market. There does not seem to be an issue of market failure (Farkas 2017, 14). It



should be however noted that the market is not perfect but the introduction of an IPR will doubtfully solve the problem (Kerber 2016, 995).<sup>50</sup>

Another argument for the creation of property rights over information goods can be based on Arrow's information paradox.<sup>51</sup> As Arrow explains, prior to buying the information the buyer wishes to estimate the value the information has for him. However, if the seller would disclose the content of the information before selling it, the buyer would discover its content and would not need to buy it anymore. Therefore, if a property right would be instituted over that information the buyer would not be able to use the information even when knowing its content. Therefore, a disclosure could safely be made before the conclusion of the contract (Arrow 1962, 614–616). The information paradox is clearly attributable to data. However, from a practical standpoint this problem can nevertheless be overcome by sufficiently defining and describing the data, without the necessity of fully revealing it (Kerber 2016, 994). From this perspective, an IPR is unnecessary as well.

It comes from these considerations that there does not seem to be a strong argument militating for an IPR over data. Moreover, there seem to be several arguments both from economic and legal standpoints that advocate against such an approach which will be addressed below.

### *Tragedy of the anticommons in data*

The tragedy of the anticommons happens when the number of overlapping property rights and right holders is too big and complex to result in a successful use of the property. Foreseeably, this issue can manifest itself with data as well. By granting IPRs at either the semantic level (not proposed) and syntactic level (proposed) on singular pieces of data can lead to a complicated situation where the possibility of distinguishing between the many rights and right holders is almost impossible. The modern data economy presupposes the use of data in vast quantities, very often coming from different sources (Gordon 2013, 12–13). Mixing data from different sources, licensed under different conditions, which can in turn be used to produce new data immediately or somewhere down the value chain, can result in an unsolvable entangled network of property relationships. Such relationships lead to legal uncertainty which almost inevitably results in underuse. It must be however noticed, that through contract law, entering into these kinds of unwanted, complex relationships is already possible. The only difference is that without property rights, third parties, are essentially free from property rights considerations. This already deescalates the complexity and makes data use and transfers easier.

### *Legal certainty issues*

Regarding the subject matter, the scope and the allocation of rights, the proposed data producer's right would be too unstable as Hugenholtz argues. The data's dynamic nature makes the creation and capture of data extremely hard to appropriately fit into the category of an IPR. Data are used in large volumes and they perpetually change. Therefore, there is no constant substantive object that can be precisely defined by the property right. This makes enforcement of the right problematic and can lead to legal uncertainty (Hugenholtz 2017, 12–13). Moreover, the issues of the allocation of the right are quite complex and it is not clear to whom should the right

be awarded, especially in a networked environment, further affecting legal certainty concerns (Wiebe 2016, 880).

### ***Creation of a super-IPR***

The Commission's proposal envisages the grant of IP protection over data at the syntactic level and not the semantic one. This at least theoretically excludes the protection of 'raw' ideas and information by creating a 'super-IP right' (EC 2017b, 33). Although this discourse is commendable, it is questionable whether in practice things would work that way. Data are often created through standardized computational operations. This often leads to a one-to-one relationship between the syntactic and semantic data levels. In such a case there is no practical difference between the code and the meaningful information. It follows from this that information monopolies could be created, despite the attempt to avoid precisely that. The subsequent problem arises when IPRs are created and manifested in the digital world. As such all of them will inevitably have a syntactic level. In that way the data IPR, having a low threshold for establishing protection, can severely undercut other traditional IPRs (Hugenholz 2017, 10–12).

### **Conclusion**

This article tried to show whether there is a case for the creation of a property right over non-personal and anonymized data. The data producer's right, according to the Commission's proposal, is one of the options for improving the European data economy. However, as this article has demonstrated it is at the least highly questionable whether such a measure would actually be productive. The current theoretical and practical considerations, when weighed from both the pro and contra sides, do not indicate that the introduction of such a right is justifiable in relation to the risk it carries. Yes, regulatory and legislative steps should be taken. The introduction of best practices and contract templates are actions that are commendable (EC 2017a, 152–161). The introduction of sector and context-specific measures is a method that could also be applied (Kim 2018, 166). However, without a clear and strong economic and legal case, the introduction of the data producer's right should simply not happen. In this still fragile, developmental period of the data economy, the possible damages brought by ineffective policy choices can significantly hamper future growth and development. One clear indication of warning is the EU's experience with the Database Directive, whose effectiveness remains inconclusive, possibly negative (EC 2018).<sup>52</sup> The focus of the EU should be on facilitating access to data and stimulating data flows (Kocharov 2009, 6; Mitchell and Hepburn 2017, 187). Should the circumstances in the market and technology change in the future, a reconsideration for the introduction of an IPR over data could be discussed once again.

### **Notes**

1. The original quote is attributed to Clive Humby, having coined the phrase in 2006.
2. Artificial Intelligence and the Internet of Things including Industry 4.0 are heavily data-dependent.
3. The main concerns highlighted in the EU Study are ensuring business interoperability, access to data, facing uncertainties and the hampering of data (re-)use.

4. For a comprehensive insight to the Commission's activities regarding the European data economy see (EC 2019).
5. "Oettinger: „Wer die Daten hat, hat die Macht;“ Auch aus Sicht von Günther Oettinger, EU-Kommissar für Digitale Wirtschaft, ist das Thema Industrie 4.0 die große Chance für die heimischen Unternehmen. Aber auch er muss einräumen, dass der politische Rahmen in Europa für die Industrie 4.0 alles andere als ideal sei. „Andere Staaten haben eine Strategie“, so Oettinger, „die Frage ist: Haben wir die auch?“ Der EU-Kommissar sprach sich daher auf der VDMA-Veranstaltung in Hannover – als ersten Schritt – für ein „virtuelles und digitales Sachenrecht“ aus, das auch für Daten gelte. Dies würde dann auch den rechtlichen Rahmen für die USA in Europa bilden, so Oettinger.“ Commissioner Oettinger, Speech at Hannover Fair, April 2015.
6. Referring to the International Council of Science's definition of data: 'digital observations, scientific monitoring, data from sensors, metadata, model output and scenarios, qualitative or observed behavioural data, visualisations and statistical data collected for administrative or commercial purposes' and 'data are generally viewed as input to the research process'.
7. For this and similar definitions see Tuomi (1999, 104–105).
- 8.

[P]ersonal data' means any information relating to [an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person];

Article 4(1), Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] *OJ L 119* (hereinafter: *GDPR*).

9. The combination of anonymized data from Netflix with publicly available data led to the de-anonymization of a few of its users.
10. A similar view is also espoused by Katz (2017).
11. 'Building a European data economy is part of the Digital Single Market strategy. The initiative aims at enabling the best possible use of the potential of digital data to benefit the economy and society.'
12. van Erp talks about the concept of ownership in the following manner:
 

It ranges from the fullest right possible with regard to tangibles (thus excluding intangibles as in German law) to the fullest right possible with regard to both tangibles and intangibles (as in French law) to an exclusive right to possession (as in common law, where we should, furthermore, distinguish between 'estates' in land and 'titles' to personal property).
13. For example, in contractual relations.
14. Article 1(2) GDPR refers to the objectives of the Regulation stating that it protects the basic rights and freedoms and in particular 'the right to the protection of personal data', therefore providing the definition of the right separate from property. This view is not necessarily shared in the US. Some privacy conscious academic advocate the propertization of privacy as the model for increasing privacy protection. For example, see Schwartz (2004).
15. Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases [1996] L77/20 (hereinafter: Database Directive).
16. Article 1(2) Database Directive.
17. Article 7 Database Directive.
- 18.

Against that background, the expression 'investment in ... the obtaining ... of the contents' of a database must, as William Hill and the Belgian, German and Portuguese

Governments point out, be understood to refer to the resources used to seek out existing independent materials and collect them in the database, and not to the resources used for the creation as such of independent materials. The purpose of the protection by the *sui generis* right provided for by the directive is to promote the establishment of storage and processing systems for existing information and not the creation of materials capable of being collected subsequently in a database.

Paragraph 31, Case C-203/02 *The British Horseracing Board and Others* [2004] ECR I-10415, (hereinafter: *British Horseracing Board*).

19. Article 7(1), Database Directive.
- 20.

The repeated and systematic extraction and/or re-utilization of insubstantial parts of the contents of the database implying acts which conflict with a normal exploitation of that database or which unreasonably prejudice the legitimate interests of the maker of the database shall not be permitted.

Article 7(5), Database Directive.

21. Recital 45, Database Directive.
22. Recital 46, Database Directive.
23. Paragraph 72, *British Horseracing Board*.
24. Paragraph 69, *British Horseracing Board*.
25. The language in the TRIPS and the WIPO Copyright Treaty provides for protection over 'collections' or 'compilations' of data, whereas such a protection is not directly envisaged in the Bern Convention which protects 'collections of literal or artistic works' without reference to data.
26. Article 3(2), Database Directive.
27. Paragraphs 30-33, Case C-604/10 *Football Dataco Ltd et al v Yahoo! UK Ltd et al* ECLI:EU:C:2012:115.
28. Article 38, Database Directive.
29. Articles 41-42, Database Directive.
30. Article 2(1)(a), Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure [2016] OJL 157 (hereinafter: Trade Secrets Protection Directive), art 2(1)(a).
31. Article 2(1)(b), Trade Secrets Protection Directive.
32. Article 2(1)(c), Trade Secrets Protection Directive.
33. Articles 3 and 4 define what 'lawful and unlawful acquisition' mean.
34. Article 4, Trade Secrets Protection Directive.
35. The Commission proposed a number of non-legislative and legislative options, including model contract terms, default contract rules and access for public interest purposes.
36. The obligation of the manufacturer to monitor the application of its product on the market. *ibid*.
37. For example, grid balancing for smart homes.
38. Data for the purpose of urban planning, environmental protection, etc.
39. For a more recent account of the overuse of environmental resources and the creation of property rights see Berkes (1985).
40. Pejovich cites North and how the changes in the population of 13th century England lead to new rules regarding land property.
41. The development of the knowledge economy required new paradigms in relation to international lawmaking and governance IPRs.
42. Here the term 'information' is used as an umbrella term that encompasses the whole trichotomy of data, information and knowledge.
43. Heller in his seminal article investigated the situation of property rights for shops in post-soviet Moscow. The unclear and entangled situation involving property rights and right-

holders, made it almost impossible to navigate through this complex web of relationship for the would-be renters. The result was that the shops were not rented and stayed dormant.

44. Heller and Eisenberg primarily refer to the patenting of genes and gene fragments.
45. For example, the average cost of a major studio motion picture in 2007 was \$65 million.
46. Clinical trials on average cost in 2015–2016 \$19 million. The purpose of these trials is to generate data on safety and efficacy of the drug.
47. For example, surveys generating geophysical data for the purposes of raw materials or oil extraction can cost in the € millions.
48. The typical case would be the collection of data on machine performance in a production facility. Although the data are primarily intended to optimize the performance of the machines for the company itself, the data can also be valuable to the machine producers.
49. Aggregation of data for later sale coupled with data analytics as a service are examples of this business model.
- 50.

Rather, the problems are seen to lie in an insufficient demand for data, because many, especially small- and medium-sized companies, seem not to be sufficiently aware of the benefits of using data for their business, the lack of interoperability, standardization, and open platforms for data-sharing as well as problems of pricing of data and the availability of skilled data workers. Therefore, the question of the functioning of data markets is one of the most important research questions that should be addressed in future research. Despite this caveat, there is so far no evidence supporting the claim that the trade and use of data generally suffers from a lack of exclusive property rights. (footnotes omitted)

51. Arrow discusses the tradability of information as a commodity.
52. The study did could not conclude whether the Database Directive is economically justifiable. In addition, it recognized that some stakeholders advocate the abolishment of the right.

The effect of the sui generis right on the production of databases remains unproven as the economic evidence, albeit scarce, is inconclusive. Consideration could be given to abolition of the sui generis right owing to many of its deficiencies and incoherence with the EU acquis.

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