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# Do “Data Markets” Exist?\*

Vincenzo Zeno-Zencovich

## Abstract

Data are an infinite resource which is continuously produced in ever increasing amounts. Personal data shares with general data non-consumability and non-rivalry, enabling individuals to use their data as an unlimited currency to buy a vast amount of digital services. How can traditional competition principles (whose basic corner-stones are scarcity and limits to power of expenditure) apply to such a new environment? The article suggests that in order to pursue policy goals (consumer welfare, innovation, protection of individual fundamental rights) a holistic regulation, which takes into account the interests of the multiple stakeholders, and traditional consumer protection legislation are more appropriate, especially in the light of the general need for legal certainty.

## Summary

1. Introduction. – 2. Datafication. – 3. “Ownership” of data. – 4. “Data markets” or “data services”? – 5. Two-sided markets. – 6. Legislative and regulatory constraints. – 7. Intellectual property rights. – 8. Personal data protection. – 9. Level playing fields? – 10. Some conclusions.

## Keywords

Privacy, Big Data, Personal data, Antitrust, Competition law

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## 1. Introduction

Presented, with typical boisterous journalistic style, as the “new oil”, “Big Data” has rapidly revealed its profound differences: data are non-material entities, non-consumable and – to a certain extent – non-rivalrous.

This different qualification does not diminish the importance of Big Data. In the last decade it has increased and awareness by economists and lawyers has brought to a deeper knowledge of the phenomenon.

More recently Big Data have entered in the visual field of competition authorities who are concerned by possible restrictive consequences of detention of huge quantities of data by what are called “Big Tech” companies, under the two typical situations that require antitrust scrutiny: that of restrictive agreements or concerted practices; and that of abuse of a dominant position.

The obvious corollary of this approach is that of establishing if “data [or Big Data]

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markets” exist, and what is their nature.

It is a good intellectual practice, before claiming to have discovered some novelty, to look back and see what has happened in the past. Information – *i.e.* structured and oriented data – has always existed. Especially in the financial and business sectors information was – and still is – collected to evaluate creditworthiness. Financial markets have always been informational markets, in which the value of a share or of a bond is dependent from the amount of information one possesses concerning a company and the context in which it operates<sup>1</sup>. At a very elementary level, before the Internet age, many companies were providing for a very small sum, information concerning the phone number or the whereabouts of a subscriber or of a business. Still now there is a flourishing market – especially in the medical sector and in the US – of personal data, which in certain cases can reach \$50 per name<sup>2</sup>.

Going back in time, in the famous *Associated Press v. US*<sup>3</sup> case the US Supreme Court established, with a clear pro-competitive approach, that access to news agency reports (again a case of structured data) could not be restricted to competing media companies<sup>4</sup>.

What changes with Big Data? Many things, because the sheer size of data modifies their role, use and value.

What must be also considered is that the growth of telecommunication networks, their ubiquity, the fact that practically all objects are or will be connected, determines a constant production and flow of data which enable monitoring and decision making in real time.

Data have become an essential component – one might call them a raw material – of any business. In this context hundreds of business have developed making the col-

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<sup>1</sup> It is impossible to draft an exhaustive bibliography on the role of information in financial markets. For a few indications see D. Chambers-E. Dimson, *Financial Market History: Reflections on the Past for Investors Today*, CFA Institute Research Foundation, 2016; H. S. Houthakker-P.J. Williamson, *The Economics of Financial Markets*, Oxford, 1996; P.-J. Engelen, *Remedies to Informational Asymmetries in Stock Markets*, Cambridge, 2005.

<sup>2</sup> See the Report by the US Federal Trade Commission, *Data Brokers. A Call for Transparency and Accountability* (May 2014). For the economic analysis of a series of new information markets see D. Bergemann-A. Bonatti, *Markets for Information: An Introduction*, Cowles Foundation Discussion paper no. 2142 (August 2018).

<sup>3</sup> 326 US 1 (1945). In his usual assertive style Justice Black *per curiam* stated that «The First Amendment, far from providing an argument against application of the Sherman Act, here provides powerful reasons to the contrary. That Amendment rests on the assumption that the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public, that a free press is a condition of a free society. Surely a command that the government itself shall not impede the free flow of ideas does not afford nongovernmental combinations a refuge if they impose restraints upon that constitutionally guaranteed freedom. Freedom to publish means freedom for all, and not for some. Freedom to publish is guaranteed by the Constitution, but freedom to combine to keep others from publishing is not. Freedom of the press from governmental interference under the First Amendment does not sanction repression of that freedom by private interests. The First Amendment affords not the slightest support for the contention that a combination to restrain trade in news and views has any constitutional immunity».

<sup>4</sup> Can information be considered an “essential facility”? According to the ECJ, in the *Magill* decision (C-241/91), yes. According to the US Supreme Court, in *Verizon v. Law Offices of Curtis Trinko*, 540 US 398 (2004), albeit in a somewhat different context, no («There is no duty to aid competitors. Antitrust analysis must always be attuned to the particular structure and circumstances of the industry at issue»).

lection, processing, sale and exploitation of data (or of their sub-products) their core business.

## 2. Datafication

If data are so important – if not essential – in contemporary economy and their importance will be ever-growing<sup>5</sup> it appears reasonable to try to define “data markets”. A few premises are necessary.

The term “data” which has been used recurrently is not altogether precise, and data scientists do not necessarily agree on its exact meaning and the difference with other terms<sup>6</sup>.

This ambiguity is increased by the fact that practically any material object, any process, any event that exists or happens in this world – but also beyond this planet and in the infinity of outer-space – can be datafied.

The fact that everything – from the incredibly small to the incredibly big – can be and is actually digitalized has significant consequences on the aim of this paper. Data – whatever their precise, technical or related, meaning – are an infinite resource: they are not limited in time – one can datafy geological events that happened millions of years ago, as one can datafy explosions that happened in a remote galaxy distant from us thousands of light-years.

And one can imagine that the production of data – quite differently from any natural resource – will never end, until we dispose of the means to collect and digitalize them<sup>7</sup>. This is something novel in economic theory – especially in its antitrust side – which generally contemplates scarce resources<sup>8</sup>. Furthermore, it would appear that in many cases the “production costs” of data are very low if not insignificant.

It is difficult to find equivalent situations. Numbers are infinite, and we find a market of numbers only when they are made scarce, as in the case of telephone numbers and there is a request for easy-to-remember numbers.

In the other cases the resources could be considered infinite (the sea, the sky), but public policy reasons (security, safety, environmental protection) restrict their use, ex-

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<sup>5</sup> One can find sufficient elements in the vast report by the OECD, *Data-driven Innovation for Growth and Well-being* (October 2014), and see how much way has been made over the last four years.

<sup>6</sup> See N. Duch-Brown-B.Martens-F. Mueller-Langer, *The economics of ownership, access and trade in digital data*, JRC Digital Economy Working Paper 2017-01, 6 ss. At any rate, in this work I will be following the model which moves from data (any representation in digital form of something), to information (structured data with a discernible, for humans, meaning), to knowledge.

<sup>7</sup> Adapting the typical explanation of the infinity of numbers, if we imagine that data are finite, simply by processing such finite database or any of its elements we create one more (meta)datum which increases the number of existing data. This universe of data has been qualified as “datasphere”: see J.-S. Bergé-S. Grumbach-V. Zeno-Zencovich, *The ‘Datasphere’, Data Flows beyond Control, and the Challenges for Law and Governance*, in *Eur. J. Comparative L.*, 5, 2018, 144 ss.

<sup>8</sup> Subsequently one tries to define the relevant market through the demand substitution test. The difficulty of applying this test to personal data is highlighted by D. S. Tucker-H. B. Wellford, *Big Mistakes Regarding Big Data*, in *The Antitrust Source*, December 2014, 5 ss.

ploitation and appropriation. But, setting aside specific regulation on “personal data”, no such restrictions can be found with data.

### 3. “Ownership” of data

Quite commonly there is a great debate, also when tackling competition issues, on the ownership of data. Especially when the topic is examined by the economists (but often even by lawyers) there is a great confusion which requires to be dispelled. “Ownership” is not a notion which is engraved in some sacred tables. It is the result of centuries, millennia of theoretical, religious, political, social, economic evolution. And as the law can only be expressed in words “ownership” means what it means in English speaking jurisdictions. Once translated in a different language it means what it means in that jurisdiction. This is one of the main tasks of comparative law: trying to understand what similar terms mean in different legal systems; and how to find corresponding terms for similar legal institutions. Admittedly these semantic problems escape rather coarse and one-size-fits-all economic theory, but at least lawyers should be aware of the pit-falls when they enter in the “ownership” debate. Ownership is a concept quite different from *propriété* or from *Eigentum*.

Furthermore, one should add that trying to assert an “ownership” over one’s personal data is an attempt that (in continental Europe) not only totally ignores over 150 years of debate on personality rights (von Gierke’s and Kohler’s contributions being the starting point)<sup>9</sup>, but even forgets the roots of continental legal systems: “*Dominus membrorum suorum nemo videtur*”<sup>10</sup>. Again, this property-like approach can be understood – but not justified – when it comes from wannabee-lawyers who are unaware of the essential bearings of a legal system, but is unacceptable when it comes from academic lawyers: juggling and jumbling with the letters of the juridical alphabet does not produce a work of legal literature.

With these premises, one should point out that what law-makers, lawyers, economists and stakeholders are searching for is legal certainty. Once data is under the control of a business there can be no doubt that it has the right to use, not use and exploit such data, being well aware that as that data is non-rival it might be in the availability also of some other entity: the typical example is that of statistical data acquired from a public body. Whether one uses trade secret rules, or the *sui generis* protection for data banks<sup>11</sup> whoever lawfully holds the data is entitled – therefore the term “entitlement” appears

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<sup>9</sup> See G. Resta, *Personnalité, Persönlichkeit, Personality. Comparative Perspectives on the Protection of Identity in Private Law*, in *Eur. J. Comp. L.*, 3, 2014, 215 ss.

<sup>10</sup> Ulpian, L. 13 pr. D. 9, 2 («Nobody can own one’s own limbs»)

<sup>11</sup> Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information (as amended by Directive 2013/37/EU). In the Big Data/competition context see the analysis of the relevant CJEU case-law by I. Graef, *Market Definition and Market Power in Data: The Case of Online Platforms*, in *World Competition*, 38, 2015, 473 ss., at 481.

much more appropriate than ownership<sup>12</sup> – to use them<sup>13</sup>. Only in some, very limited cases, there may be an obligation, set by the law to disclose such data or make it accessible to third parties. This happens typically with businesses which are entrusted with public services and with some financial services.

At any rate what one sees is that with data – as with most digital entities (*e.g.* software programmes) – there is a significant shift from the “sales” paradigm (complete, unlimited in time and not reversible transfer of rights from vendor to buyer) to a licence model: licensor allows licensee to use a certain entity, for a certain scope, for a certain time. There is no transfer but agreed access to a database, and eventually to data analytics facilities, with no right to further disseminate the data<sup>14</sup>.

Even more radical is the model by which the entity that holds the data does not disclose it but simply allows – under consideration and stringent contractual terms and conditions – a third party to use its data analytics tools. This model is common in market research<sup>15</sup>.

The final result is that “trade in data” tends to be rather limited (and generally not allowed in Europe owing to GDPR constraints) and does not include “big data”<sup>16</sup>.

#### 4. “Data markets” or “data services”?

One could conclude that a generic “data market” does not exist. What one can, and should, do is a careful process of distinguishing between the many sectors in which data are an essential element. So what one should be concerned with are not data

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<sup>12</sup> “Ownership” of data is thoroughly investigated (and challenged) by F. Mezzanotte, *Access to Data: The Role of Consent and the Licensing Scheme*, in K.S. Lohsse-R. Schulze-D. Staudenmayer (eds.), *Trading Data in the Digital Economy: Legal Concepts and Tools*, Oxford, 2017. Similar critical views are expressed by S. van Erp, *Ownership of Digital Assets and the Numerus Clausus of Legal Objects*, Maastricht European Private Law Institute Working Paper No. 2017/6 (1 October 2017).

<sup>13</sup> There may also be criminal law provisions prohibiting from accessing and copying data held by a third party: see § 502 of the California Penal Code which was the object the *Facebook v. Power Ventures* decision (USDC N.D. California 25 September 2013).

<sup>14</sup> This tendency is widely examined in A. Perzanowski-J.M. Schultz, *The End of Ownership. Personal Property in the Digital Economy*, MIT Press, 2016. See also H. Zech, *Data as a Tradeable Commodity. Implications for Contract Law* (available at SSRN – Nov. 2017) (especially § 4).

<sup>15</sup> For these reasons the Arrow Information Paradox (see N. Duch-Brown-B. Martens-F. Mueller-Langer, *The economics of ownership, access and trade*, cit., at 46), appears to be of limited importance because there is no, or it is extremely controlled, release of information. One should also consider that the value of data – or what one can extract from it – is highly dependent on its timeliness. Obsolescence is often a matter of days if not of hours: I need to know here and now if the train or the plane is on time or is late. D. L. Rubinfeld-M.S. Gal, *Access Barriers to Big Data*, in *Ariz. L. Rev.*, 59, 2017, 339 ss. suggest (at 370) that unavailability of past data might not necessarily be a competition concern as firms «might also invest more resources in creating better analytical tools rather than in gathering more data». See also D. Bergemann-A. Bonatti, *Markets for Data*, Society for Economic Dynamics 2012 Meeting Papers 538.

<sup>16</sup> H. Zech, *Data as a Tradeable Commodity. Implications for Contract Law*, cit., points out (para. 5) that the service paradigm limits – as a default rule in German law, but in any case in standard form contracts in use in the trade – the possibility of transferring to a third party the right to take advantage of the service.

per se, but rather the multifaceted services which require data for their functioning<sup>17</sup>. Therefore, one should consider that search engines are different from repositories which are different from social media which are different from travel and accommodation intermediaries which are different from etc. etc.<sup>18</sup>

Looking at the different services one can understand if there are competitive constraints and if there are barriers to entry<sup>19</sup>.

How relevant are data in this kind of examination? Again, it is important to distinguish. There are services whose main business is to collect data from users, data which subsequently are processed, aggregated, analyzed and then sold to third parties<sup>20</sup>.

There are other services in which, together with the collection of data, the business “sells” its users to advertisers, commonly through banners, but most profitably by allowing the insertion of cookies, which allow the third parties to monitor user preferences and promote their goods and services.

There are also services for which data are a source of collateral revenue in respect of the core business – generally intermediation – which ensures very high commissions. In order to understand the role of data one should therefore try to understand to what extent data are the source of revenue of the business and when availability of certain data gives the business a specific market power<sup>21</sup>.

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<sup>17</sup> This appears to be the approach taken by the EU Commission in the *IBM Italia/UBIS* merger (COMP/M 6921, 19.6.2013) which was granted after analysis of the different services, and not of the databases they were using. The following *Facebook/WhatsApp* merger decision (COMP/M 7217) focused more on the databases held by the two companies but concluded that there was no evidence of a dominance and that there was no down-stream data market. It is significant that the Italian Competition Authority sanctioned Facebook with a Euro 3 mln fine for this merger not for antitrust violations but for misleading consumer practices, as it had not notified WhatsApp users that their data would have transferred to (and processed by) Facebook (Decision PS10601, 11.5.2017). See also H. Zech, *Data as a Tradeable Commodity. Implications for Contract Law*, cit.

<sup>18</sup> Appropriately I. Graef, *Market Definition and Market Power in Data*, cit., at 479, suggests the need of careful distinguishing between the different kinds of data, the use that is made of them and the procedures used to analyse them.

<sup>19</sup> A competition issue arises when a company holds exclusive data banks as in the *Dun & Bradstreet/Quality Education Data* merger which brought to a FTC order of divestment which was accepted by D&B (see the 10 September 2010 Decision and Order, available online). D. L. Rubinfeld-M.S. Gal, *Access Barriers to Big Data*, *Ariz. L. Rev.*, 59, 2017, 339 ss., point out competition concerns when a business controls up-stream production and provision of data in a certain sector, preventing competitors from creating a similar database. This brought the FTC in the *Nielsen/Arbitron* merger to issue an order (24 February 2014) to divest certain activities and licence access to certain data.

<sup>20</sup> «Data however are mostly intermediary goods that are used in production processes by other parties»: N. Duch-Brown - B.Martens - F. Mueller-Langer, *The economics of ownership, access and trade*, cit., at 28.

<sup>21</sup> See the *Microsoft/LinkedIn* merger (Case M.8124, 6.12.2016) at § 179: «Assuming such data combination is allowed under the applicable data protection legislation, there are two main ways in which a merger may raise horizontal issues as a result of the combination under the ownership of the merged entity of two datasets previously held by two independent firms. First, the combination of two datasets post-merger may increase the merged entity’s market power in a hypothetical market for the supply of this data or increase barriers to entry/expansion in the market for actual or potential competitors, which may need this data to operate on this market. Competitors may indeed be required to collect a larger dataset in order to compete effectively with the merged entity than absent the merger. Second, even if there is no intention or technical possibility to combine the two datasets, it may be that pre-merger the two companies were competing with each other on the basis of the data they controlled, and this competition would be eliminated by the merger». The Commission however concluded that in

This appears to be – at least at a very first glance – the approach of the German Competition Authority (*Bundeskartellamt*) in its very recent *Facebook* decision according to which the company has a dominant position in the German market for social networks and therefore is subject to special obligations under competition law<sup>22</sup>. The decision, having taken what might be called the “privacy short-cut”, has prohibited Facebook from implementing its data processing policies.

A further classification is however necessary. Most of the data is generated by the users or – the difference is relevant – by the use of the service in itself which creates so-called meta-data<sup>23</sup>. This provision of data requires to be better analyzed. In some cases, the provision of data by users is ancillary to the service offered, such as in the case of travel and accommodation intermediaries<sup>24</sup>.

In other cases, instead, the exchange is quite clear: the business is offering a service without monetary payment but receives as consideration the data of the users<sup>25</sup>. It took considerable time before law-makers realized that behind the so-called “free” provision of digital services there was a very elementary economic operation : the operator attracts users with its services and collects from them micro-data which the

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the specific case «the combination of their respective datasets does not appear to result in raising the barriers to entry/expansion for other players in this space, as there will continue to be a large amount of internet user data that are valuable for advertising purposes and that are not within Microsoft’s exclusive control» (§ 180). Distingue frequenter is the caveat of I. Graef, *Market Definition and Market Power in Data*, cit., at 505: «A hypothetical or potential market for data can be defined by looking at the substitutability of different types of data and in particular at the functionality which can be offered with a specific set of data as input. In this way, separate relevant markets can possibly be defined for offline and online data and, as further subsegmentations within the latter market, for search, social network and e-commerce data».

<sup>22</sup> See the Bundeskartellamt decision of 7 February 2019 in case B6-22/16 ([an English case summary is available online](#); see also the [press release with comments by the Chairman of the Competition Authority](#)). The decision cannot be commented in length in this paper. The doubts it raises are that the “social media” market is substantially tailored on Facebook, in the sense that the term “social media” is simply a synonym of Facebook. Further there is a debatable overlapping of rather different and distinct set of rules when the decision states that «The violation of data protection requirements found is a manifestation of Facebook’s market power» and when it qualifies Facebook’s terms and conditions as unfair [which they surely are, but this is the role consumer protection authorities]. Finally, when the decision states that Facebook has «gained a competitive edge over its competitors in an unlawful way and increased market entry barriers» it begs the question if, once have designed such a tailored market, there can be “competitors” and why data give Facebook a dominance. For an answer to these doubts one can refer to the proposal of doing without the definition of a relevant market and looking at competition “across-markets” analysed in depth by M. Maggiolino, *I big data e il diritto antitrust*, Milan, 2018, 264 ss. See also A. Pezzoli, *Big data e antitrust: una occasione per tornare ad occuparci di struttura?*, in V. Falce-G. Ghidini-G. Olivieri (eds.), *Informazione e big data fra innovazione e concorrenza*, Milan, 2018, at 253. But see *contra* the conclusions of M. Gambaro, *Big data, mercato e mercati rilevanti*, in V. Falce-G. Ghidini-G. Olivieri (eds.), *ibidem*, at 208.

<sup>23</sup> I. Graef, *Market Definition and Market Power in Data*, cit., at 475.

<sup>24</sup> Aptly J. Drexl, *Legal Challenges of the Changing Role of Personal and Non-Personal Data in the Data Economy*, MPI Research Paper no. 18-23, at 27 points out that there are several cases in which individuals pay a monetary consideration for receiving data-driven services (e.g. automobiles, sports wearable devices) and therefore the data they provide is not the counter-performance.

<sup>25</sup> «The collection of personal data consequently operates as an indispensable currency used to compensate the providers for the delivery of their services to users»: I. Graef, *Market Definition and Market Power in Data*, cit., at 477.

users consider of no economic interest<sup>26</sup>, but once they are aggregated they allow extremely valuable profiling of the user and the creation of homogenous groups for marketing purposes.

This is a development of the commercial TV model, in which broadcasters bought/created programmes to attract viewers who were then “sold” to advertisers. Again, it took a few decades before law-makers understood the dynamics of so-called two-sided markets.

The difference is that with TV programmes there is no exchange between broadcasters and viewers (the latter can switch to a different channel or turn off the set when commercials are broadcast).

In the case of digital services, instead, in order to take advantage of the services offered, users must be constantly connected and therefore are paying the service with their data: pay-as-you-go.

As it is not a monetary exchange, one can see the transaction in two specular ways: the user’s data are the *quid-pro-quo* for the services; and the services are the *quid-pro-quo* for the data. This last aspect is not adequately considered<sup>27</sup>. A data company in order to acquire its raw materials must buy them on the market. It generally does so by inducing users to use their services. Competition – and antitrust scrutiny – therefore is on, and between, the latter<sup>28</sup>.

To present the economic reality more precisely: data companies manage to collect more data from users because they offer them more efficient and attractive services<sup>29</sup>. Users prefer one provider rather than another because for the price they pay (their data) they receive services which they value more. There does not appear to be a significant difference – from the point of view of the user – between the data which are provided (*e.g.* only general identification data; or data on preferences and localization, etc.). The price therefore is, subjectively, always the same<sup>30</sup>. And one should add that as data are non-consumable, non-rivalrous and continuously produced there is no limit to the expenditure of the user<sup>31</sup>.

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<sup>26</sup> See however the field research by S. Spiekermann-J. Korunovska-C. Bauer, *Psychology of Ownership and Asset Defense: Why People Value Their Personal Information Beyond Privacy*, 2012 (available at SSRN).

<sup>27</sup> See A. Metzger, *Data as Counter-Performance: What Rights and Duties Do Parties Have?*, 8 JIPITEC, 8(2), 2017, 1 ss.

<sup>28</sup> D. Auer-N. Petit, *Two-Sided Markets and the Challenge of Turning Economic Theory into Antitrust Policy*, in *Antitrust Bulletin*, 60, 2015, 426 ss. point out that in these cases «applying a [SSNIP test or a] “small but significant decrease in content quality” test would certainly prove a daunting task».

<sup>29</sup> I would beg to differ from the concern expressed by D. L. Rubinfeld-M.S. Gal, *Access Barriers to Big Data*, in *Ariz. L. Rev.*, 59, 2017, 339 ss. that «consumers may enjoy lower-priced and higher quality products that are intended to “lure them” to use particular online services» (at 375). This case appears to be a typical example of unchallengeable “competition on the merits”. Or should one envisage some sort of “predatory services”?

<sup>30</sup> «Contrary to usual economic transactions, users as suppliers of data cannot determine the amount and type of information they want to supply and do not have any influence on what they will get in return»: I. Graef, *Market Definition and Market Power in Data*, cit., at 490.

<sup>31</sup> This economic approach is strongly countered by European data protection authorities which claim that personal data, being a fundamental right, cannot be used as valid consideration for the provision of digital online services. See the EU Article 29 Data Protection Working Party, *Guidelines on consent under Regulation 2016/679* (28 November 2017 – 10 April 2018): «As data protection law is aiming at the

One should therefore carefully distinguish between services which are paid with a monetary remuneration, for which consumers/users must necessarily choose among many in accordance with their budget. And the services-against-data exchange where hypothetically the user/consumer can buy an unlimited amount with the same data<sup>32</sup>. Looking at things from the perspective of the enterprise not only data are an infinite resource but also, there is no limit to the expenditure capacity of users who, metaphorically, are all carefree billionaires<sup>33</sup>.

If one considers the hundreds of popular Apps, one can see how, very practically, this market works. As consumers have not exhausted their spending resources, the barriers to entry on the market do not appear to be on the demand side.

The other – parallel, not alternative – system to acquire fresh and precious data is that of increasing the production of data exploiting new “data-mines”. The internet-of-things (IoT) phenomena is a typical example: data are no longer produced by humans, but by objects which are connected to machines. One can reasonably expect that in the near future such form of production will be dominant, with significant changes in the market<sup>34</sup>.

Services will move from what are now the most common devices (personal computers, tablets, handsets) to widespread consumer objects: in the first place, automobiles<sup>35</sup>, then refrigerators, household appliances, and progressively all consumer

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protection of fundamental rights, an individual’s control over their personal data is essential and there is a strong presumption that consent to the processing of personal data that is unnecessary, cannot be seen as a mandatory consideration in exchange for the performance of a contract or the provision of a service» (§ 3.1.2) The argument however is not convincing: there are many fundamental rights which are commonly traded with the limit of their not complete forfeiture (may I refer to V. Zeno-Zencovich, *Limitazioni contrattuali alla manifestazione del pensiero*, in *Diritto dell’informazione e dell’informatica*, 1995, 991 ss., on contractual limitations to freedom of expression; and to Id., *Profili negoziali degli attributi della personalità*, *ibidem*, 1993, 545 ss., on the commodification of aspects of personality, typically image, name, privacy). The opinion of the Article 29 WG supersedes the more cautious preliminary opinion of the European Data Protection Supervisor on “Privacy and competitiveness in the age of big data: The interplay between data protection, competition law and consumer protection in the Digital Economy” (March 2014).

<sup>32</sup> «While natural persons have a right to reject cookies and other tools to collect their personal data in web browsing environments, for example in search engines, very few make use of that right and simply accept cookies because it is the lowest cost solution that enables them to benefit from access to online information sources»: N. Duch-Brown-B. Martens-F. Mueller-Langer, *The economics of ownership, access and trade*, cit., at 31.

<sup>33</sup> For these reasons the traditional arguments on pricing (and on monopolistic surcharge) have little sense in personal data markets. In *LiveUniverse v. MySpace* (USDC C.D. California – 4 June 2007) Matz J. stated that «Indeed, market share can be measured by figures other than just sales or revenue» and suggests as a parameter to measure market power «advertising revenue generated from the number of visitors to the personal profiles and networks of friends generated with and contained within the social networking web platform». The decision however rejected the antitrust claim by LiveUniverse stating that there was no evidence of harm to consumers: «The content they created is still available, and readily accessible. Internet aficionados easily move from one website to another in seconds». Which is exactly what happened “one click away”, having Facebook supplanted MySpace.

<sup>34</sup> I. Graef, *Market Definition and Market Power in Data*, cit., at 486, points out the “S-curve” value of data. Not always more amounts of data create more value, while diversity and specificity may be more valuable.

<sup>35</sup> See the complex issue of collection of data by automobile producers in J. Drexler, *Legal Challenges*, cit., at 14 ss. and Regulation (EC) No 715/2007 which allows garages to access to vehicle repair and

goods including so-called wearables. The “smart houses” technologies are typically data-driven, in a circular process: data are necessary to provide new services; and new services generate more data.

## 5. Two-sided markets

This again suggests careful distinguishing when trying to define “data markets”. Although it took a while before law-makers – especially in the field of competition – understood what two-sided markets were and how they disrupted acquired mental habits, now it is finally accepted that provision of digital services on the Internet generally generates a two-sided market. The provider collects data from users and sells targeted advertisement services to business that want to reach certain groups.

However, this is not always true, *i.e.* not all data markets are two-sided. In fact, the term appears to be used as a catch-name in improper contexts<sup>36</sup>.

It is sufficient to go back to brick-and-mortar economic models: supermarkets, considered as physical platforms, are not the actors of a two-sided-market which sees on the one side producers of goods and on the other side consumers. A distributor is part of a vertical economic process that starts with the production of the raw materials and goes on with all the intermediate steps until the final product reaches the consumer<sup>37</sup>.

One can therefore doubt that a digital distribution platform is always part of a two-sided market, especially when there are other, parallel, forms of distribution and

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maintenance information.

<sup>36</sup> Quite correctly D. Auer-N. Petit, *Two-Sided Markets*, cit., point out the «the myriad of labels that have been tagged on ‘two-sided markets’ in subsequent [to Rochet & Tirole’s seminal article] scholarship, possibly with the intention of better capturing the dynamics of those markets: “multi-sided platforms”, “two-sided networks”, “informational intermediation”, or “two-sided strategies”» (at 434); and that «The literature today displays a jungle of competing two-sided market models» (at 460).

<sup>37</sup> The statement made here does not ignore the significant debate on whether supermarkets are (Rochet & Tirole) or are not (Rysman) part of a two-sided market (for an extensive examination see D. Auer-N. Petit, *Two-Sided Markets*, cit., at 436 ss.). Setting aside complex and debatable theoretical analysis on so-called Coasian bargaining (Ronald Coase is a giant, not a God), Rochet & Tirole’s definition ends up rendering any form of not vertically integrated distribution organization a two-sided market (whether the grocer’s shop on the corner or the huge supermarket). If you buy wholesale you sell retail, and the price structure is quite easily set in a competitive environment both up-stream and down-stream. Shopping malls, instead, are quite different: the owner of the premise does not buy any product to resell it. He builds a facility that is rented to retailers, creating a physical market which attracts customers just as any market square does since the Middle-Ages. What digital service providers do is create a platform where they sell digital space and software programming to vendors who want to attract buyers (for hotel rooms, airlines tickets, any sort of product). From this point of view, one could distinguish the role of Amazon when it resells books that it has bought (operating as a bookstore) and when it enables the sale of products it does not hold (operating as an intermediary). See A. Hagiu-J. Wright, *Marketplace or reseller?*, Harvard Business School, WP 13-092, 31 January 2014. Quite appropriately Auer and Petit point out (at 438) that «The lack of semantic homogeneity in economic discourse may also be an explanatory factor» [of the differences]. Incidentally one can note that, at end of the day, the EU, with the PSD2 Directive, cut the gordian knot of one of the oldest “two-sided markets”, that of credit cards, by setting the cost of intermediation that can be charged on the merchant.

when the consumer is using the platform simply to obtain more easily the product or the service he/she is seeking. Or in cases in which there is simply an exchange of data against services, and the service provider, subsequently, uses the data to provide separate and unrelated services to third parties. A typical example can be the “Street View” service offered by Google, which creates it sending vehicles with fish-eye lenses around a town and subsequently offers it to its clients who pay for it through their data.

And as digital platforms may be multi-service providers, not every service gives rise to a two-sided market. Clearly this should be considered when trying to assess what a “data market” actually – and not in a pre-fabricated model – is. One could venture the idea that simply because users pay the services they receive with data does not make this a “data market”. The fact that ordinarily we buy products and services paying a monetary counterpart does not turn every market in a “money market”.

## 6. Legislative and regulatory constraints

Although quite recent, “data markets” are not at all some kind of new world that awaits only to be conquered by economic forces for then being ordered through *ex post* competition rules.

What is objectionable in this approach is that notwithstanding the fact Ronald Coase’s theories on institutional economics have been about for 80 years surprisingly – if not annoyingly, at least in Europe – quite often analysis of markets begins in an entirely theoretical vacuum and only after are adjusted accordingly to dreary reality.

Without delving too much in this topic, the former remarks suggest that “data markets” are, from the beginning, different according to the political, social, legal context in which they exist. A US “data market”<sup>38</sup> is different from a European “data market” which is different from a Chinese “data market”. Surely there are some common features, but it is precisely looking at these features that it is possible to detect the institutional elements that differentiate the outcome.

It is therefore preferable to look first at what the context is, in order to understand to what extent the market conforms to it. This is ever more true considering that common wisdom tells us that new digital technologies have been so disruptive and economically profitable because they by-passed the regulatory framework set for analog technologies.

From a EU perspective it would be advisable to consider in first instance the already extremely complex interaction between IP rules, data protection regulations, public sector information, sectorial regulation (telecommunications, financial markets, services of general interest). Once one has mapped the normative scenario it is possible to investigate to what extent can market forces act and the role of competition rules. The opposite approach is likely to arrive to the conclusion that regulatory exceptions have swallowed the free market rule.

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<sup>38</sup> For some very practical cases and scenarios see [D. B. Hoffman, \*Antitrust in the Financial Sector\* \(Fordham University speech, 2 May 2018\)](#).

## 7. Intellectual property rights

The first element that should be considered are intellectual property (and related) rights. All digital technologies are shielded by an IPR thicket made of patents, software and semi-conductor protection laws, trade secrets. This is not the place to discuss the merits (many) and demerits (in the same amount) of this situation. Clearly this is situation generated by heavy lobbying by industries – all industries – with little consideration by law-makers towards public and general interests. At any rate IPR and competition law have been engaging for a few decades a never-ending duel. It is not very realistic to expect it will end in data markets, while it appears easier to predict that non-circumventable IPRs will generate new forms of business that want to avoid being blocked from the out start by judicial challenge.

More concretely if we are looking at Big Data one can reasonably say that they are part of the assets of the business that has collected them, and they are protected by general rules on ownership and trade secret on a firm's intangible patrimony. Data analytics operate on the basis of software protected by SW laws. Algorithms are, expressly, not protected but it is doubtful one can legally force an entity to disclose them. If they were covered by patent law one could imagine compulsory licences, but they are not, which closes, from a legal point of view, *de lege lata* the discussion.

The best example – from a European perspective – of the contradictory trends in this field and of the difficulty – if not impossibility – of finding a balance between monopolistic pressures and pro-competition policies is given by the EU know-how and trade secret directive (2016/943). Its first recital is self-explanatory: «Businesses and non-commercial research institutions invest in acquiring, developing and applying know-how and information which is the currency of the knowledge economy and provides a competitive advantage. This investment in generating and applying intellectual capital is a determining factor as regards their competitiveness and innovation-related performance in the market and therefore their returns on investment, which is the underlying motivation for business research and development». There is an obvious, lip-service, reference (recital 38) to the general application of competition rules set out in Articles 101 and 102 TFEU<sup>39</sup>.

Among the protected trade secrets are «commercial data such as information on customers and suppliers, business plans, and market research and strategies» (recital 2), and this data may be processed by the trade secret holder in compliance with general data protection rules (recital 35).

From a very practical point of view this means that the database held by a business not only is protected by a trade secret but furthermore it may not be disclosed to third

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<sup>39</sup> J.Drexler, *Designing Competitive Markets for Industrial Data – Between Propertisation and Access*, MPI Research Paper no. 16-13 (at 67) points out that EU competition law «shows considerable shortcomings as regards the data economy: first, the requirement of market dominance in Article 102 TFEU considerably limits the scope of application of this rule and requires an often burdensome assessment. Second, it is quite uncertain to what extent Article 102 TFEU can be applied in cases in which, as will be frequently be the case, the data holder is not competing with potential customers in downstream data-related markets. Of course, Article 102 TFEU can also be relied upon to remedy excessive pricing. However, competition law enforcers can hardly be expected to act as price regulators in the data economy, which is characterised by information problems and huge uncertainties regarding the value of data».

parties because of data protection limitations. The result is that any business, even one holding a dominant position, has a double defence against allegations of exclusionary practices concerning the data it holds<sup>40</sup>.

### 8. Personal data protection

If IPRs strengthen the position of data companies, one must also consider that they operate in an, indirectly, highly regulated sector.

The first and most obvious – and nightmarish – constraint is set out by the General Data Protection Regulation (GDPR). If one looks at it not with the usual rhetoric of fundamental rights, but from an economic perspective, the GDPR tells us that:

Personal data (whatever this means: realistically any kind of data remotely related to a physical person<sup>41</sup>) cannot be freely appropriated by data companies<sup>42</sup>.

Personal data in order to be collected by data companies require the consent of the person to whom the data are referred.

The nature of this consent can be seen in various theoretical ways. From an economic point of view, it is the basis of a transaction “services against data”.

The contractual approach has its advantages, but also its drawbacks, in the first place because the contract must conform to the GDPR; in the second place because a contract between a data company and a natural person is qualified, practically always (at least in Europe), as a consumer contract. Therefore, the data company must comply with the GDPR and with the over-arching (and subject to expansive interpretation) consumer protection regulation, in particular the part concerning unfair contractual terms and unfair commercial practices<sup>43</sup>.

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<sup>40</sup> J. Drexler, *Legal Challenges*, cit., at 16 ss. stresses the role that freedom of information and free flow of information should have in regulating data markets. It should be noted, however, that – notwithstanding highfalutin proclamations by EU institutions – the law in action points in a significantly different direction: see e.g. the CJEU *Verlag Esterbauer* decision (C-490/14) asserting an exclusive right of the Land of Bavaria on its topographic maps and preventing the use of them for maps for cyclists; or the *Renckhoff* decision (C-161/17) stating an exclusive right of a photographer when his photo was used on a school presentation and put online. And even more significantly the Digital Single Market Directive (which should be finalized in early 2019) which creates litigation-prone regulation on text and data mining and confers upon press publishers the right to levy a remuneration for the further dissemination by information society providers. For these reasons advocating “data sharing” on the basis of FRAND principles (see H. Richter-P. R. Slowinski, *The Data Sharing Economy: On the Emergence of New Intermediaries*, in *IIC*, 50, 2019, 4 ss.; and G. Colangelo, *Accesso ai Data e e condizioni di licenza F/RAND*, in V. Falce-G. Ghidini-G. Olivieri (eds.), *Informazione e big data fra innovazione e concorrenza*, Milan, 2018, 135 ss.) appears to be wishful thinking.

<sup>41</sup> See J. Drexler, *Legal Challenges*, cit., at 3. See the CJEU decision in the *Breyer v. Germany* case (C-582/14, decided on 19 October 2016) where a dynamic IP address is considered “personal data”.

<sup>42</sup> This specific aspect was considered by the EU Commission when granting the *Microsoft/LinkedIn* merger (Case M.8124, 6.12.2016 §§ 177-178).

<sup>43</sup> It is sufficient to peruse the general terms and conditions tucked away in an inconspicuous link at the bottom the home page of the main service providers to verify that they are a fair of unfair terms. From a competition point of view the most relevant are those that – directly or indirectly – determine a lock-in effect for users preventing them from transferring or even cancelling the data held by the provider (e.g. e-mail messages; texts, photos and videos posted on a repository). May I refer to V. Zeno-Zencovich-G. Giannone Codiglione, *Ten legal perspectives on the “Big Data revolution”*, in *Concorrenza*

At any rate, whatever the legal quibbles over the meaning and scope of the GDPR, economic reality tells us that through the theory of consent (whether express or tacit) vast amounts of personal data are lawfully made available to the data collector<sup>44</sup>.

The GDPR is a typical regulatory barrier to trade: the big tech data companies – practically all US – who want to do business in Europe must comply with EU laws and regulations, and most important of all, may not – at least from a legal point of view – export the data they hold in other countries<sup>45</sup>.

One must consider that GDPR is only the first of a wide regulatory move to regulate “data markets”<sup>46</sup>. The data-protectionist approach will be enhanced when the so-called e-privacy regulation will be voted, as it is aimed specifically to data-companies who collect data over digital networks. This reminds us that markets work under the combined action of the business involved and of their clients, upstream and downstream, but the playing field is drawn by other actors, among which the legislature and regulators are the most important<sup>47</sup>. Paraphrasing Kirchmann’s quote dating back to the mid-19th century: «Three lines from Parliament and entire markets go to the scrap-house»<sup>48</sup>.

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*e Mercato*, 23, 2016, 29 ss., at 40 ss.

<sup>44</sup> See N. Duch-Brown-B. Martens-F. Mueller-Langer, *The economics of ownership, access and trade*, cit., at 17: «The GDPR *de facto* (but not *de jure*) assigns property rights on personal data to the data collector, however limited they may be due to his fiduciary role. In reality, data subjects exchange their personal data in online markets, for example when they access “free” online services in return for letting the service provider or data controller collect some personal data. In these cases, the data subject retains the specific rights on his data as defined in the GDPR; the service provider acquires the residual rights». Incidentally one should point out that the GDPR determines a significant fragmentation of nominal entitlement on the same data. But as its aim is mostly ideological, this issue is generally ignored (for an analysis of personal data as form of commons may I refer to V. Zeno-Zencovich, *La ‘comunione’ di dati personali. Un contributo al sistema dei diritti della personalità*, in *Diritto dell’informazione e dell’informatica* 2009, 5 ss.).

<sup>45</sup> The 1995 GATS Treaty clearly could not envisage trade in data. There have been some attempts to overcome limitations, at least in an EU/US perspective: see the “European Union-United States Trade Principles for Information and Communication Technology Services” (4 April 2011) and the aborted TTIP Treaty (specifically the chapter on e-commerce and ITC services). But also, in the Canada-Europe Trade Agreement (CETA) the CJEU in its Opinion 1/15 found that data protection concerns had not been sufficiently taken into account. And attempts by Facebook to find a “convenient” regulator in the EU (the Irish Data Protection Commissioner) were rejected by the CJEU in its *Datenschutz, Schleswig-Holstein* decision (C-210/16, decided on 5 June 2018).

<sup>46</sup> «Policy makers walk a thin line between enhancing privacy protection and not losing the social welfare benefits of data aggregation and overcoming anti-commons in data use» (see N. Duch-Brown-B. Martens-F. Mueller-Langer, *The economics of ownership, access and trade*, cit., at 34).

<sup>47</sup> For this reason, I would express some reservations on the notion of “Economics of Privacy” (see A. Acquisti-C. Taylor-L. Wagman, in *J. Economic Literature*, 54, 2016, 442 ss.). “Privacy” is an entirely legal institution. Its nature and its content depend on the will and the whim of legislatures and – in common law jurisdictions – of hundreds of courts. One can use the term as shorthand for “personal data” but then, necessarily, one has to delve in the intricacies of data regulation. In any case the use of the term “privacy” tends to perpetuate a 19<sup>th</sup> century notion (*à la* Warren & Brandeis) while the issue of data protection has rendered notions such as “seclusion” and *«la vie privée doit être murée»* (Royer-Collard, 1819) marginal, and focuses on issues such as control, steering, and manipulation of society by public and private entities (see J. Drexler, *Legal Challenges of the Changing Role of Personal and Non-Personal Data in the Data Economy*, MPI Research Paper no. 18-23, at 5: «mere economic criteria can no longer suffice to provide a policy framework for markets where privacy interests are particularly important»).

<sup>48</sup> «Drei berichtende Worte des Gesetzgebers und ganze Bibliotheken werden zu Makulatur» (J.H. von Kirchmann

### 9. Level playing fields?

Personal data laws are not the only provision one must take into account. Data companies have, from a certain point of view, a privileged position in respect of telecommunication operators who are expressly prohibited from collecting, processing and reusing the traffic data they receive from their users. Article 6 of Directive 2002/58 is very clear: «Traffic data relating to subscribers and users processed and stored by the provider of a public communications network or publicly available electronic communications service must be erased or made anonymous when it is no longer needed for the purpose of the transmission of a communication without prejudice to paragraphs 2, 3 and 5 of this Article and Article 15(1)».

From a policy perspective the provision is very clear. From an economic point of view, it is puzzling. The only justification one can find is that it was set in an era when data-companies were still embryonal.

The sense (or the non-sense) of the provision is that the first generators of the data – all digital communications pass through telecommunication networks – may not extract informational value from such traffic, which instead is the wealth of the so-called over-the-top companies, to which the prohibition contained in Article 6 does not apply. From a practical point of view a phone-call with one's handset through a telecom operator is subject to the restrictive rule. The same conversation, through WhatsApp, is not. Which is something that makes no sense from a legal, regulatory and policy point of view.

Therefore, the first – and extremely relevant – barrier to access data-markets is set by the EU legislation which creates an uneven playing-field.

If the policy aim is that of reducing assumed market power of certain players, and encourage European enterprises to become data companies, surely the first move should be to abolish this barrier. This does not seem to be envisaged by the very recent European Electronic Communications Code which recasts previous legislative texts<sup>49</sup> or by the new Privacy and Electronic Communications Regulation. But following this rather blinkering approach, it is difficult to ask competition law (and authorities) to mend one's asymmetries. And speaking of asymmetries, a further – indirect – one can be detected in the second Payment services Directive (PSD2), where it imposes upon financial institutions a duty to give access to financial data of their clients to payment providers who are not traditional financial institutions.

It is notorious that many data-companies will be providing payment services and therefore will be able to combine, inter-relate and cross-analyze the huge amount of data they possess with the extremely valuable data on financial transactions of their clients.

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entitled his 1847 lecture *Die Wertlosigkeit der Jurisprudenz als Wissenschaft* [The fallacy of law as science]. A re-edition of the lecture is published by Manutius Verlag, Heidelberg, 2000).

<sup>49</sup> Directive (EU) 2018/1972/EU of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (composed of “only” 326 recitals, 127 Articles and 12 Annexes).

## 10. Some conclusions

“Data markets” are in magmatic phase, especially because it is doubtful that we dispose of adequate intellectual and methodological tools to describe them.

One must therefore limit oneself to some very cursory conclusions<sup>50</sup>:

Data are an infinite resource, which is commodified and acquired by data companies through many economic models.

Users generate an infinite quantity of data and, as data are non-consumable and non-rivalrous, when data are the counter-performance for digital services they have no limits to their expenditure capacity.

Data resources are moving from user-generated production to object-generated production with a massive increase of the latter that will over-shadow the former<sup>51</sup>.

Data markets are extremely diverse in their structure and functioning. One of the most common features, from the production side, is that data companies enter into some kind of agreement, offering services or benefits in exchange in order to funnel towards them the product (data).

Far from being an unregulated market, data collection already has to take into account an extremely complex legal environment, where the most relevant rules are set by IP rights and by data protection laws.

The playing field for data markets is rather uneven and presents significant asymmetries among the various actors.

In this scenario, rather than a case for *ex post* competition remedies, it would appear that a holistic approach – that looks at the forest and not at the single tree – could be much more beneficial for fostering policy goals such as access, inclusion and innovation.

More specifically, consumer welfare – inasmuch as it is encroached by massive appropriation of personal data by enterprises – appears to be more efficiently protected and pursued by pro-consumer *ex ante* and *erga omnes* regulations, such as injunctions and

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<sup>50</sup> For quite the opposite conclusions see M.E. Stucke-A.P. Grunes, *Debunking the Mith over Big Data and Antitrust*, in *CPI Antitrust Chronicle*, May 2015 (2) (and more in depth in their book *Big data and competition policy*, Oxford, 2016). They are countered (always from a US perspective) by D.D. Sokol-R. Comerford, *Antitrust and Regulating Big Data*, in *Geo. Mason L. Rev.*, 23(5), 2016, 1129 ss., at 1161: «Antitrust law is ill-suited to police Big Data and its use by online firms. The empirical case for regulating Big Data as an antitrust concern is still lacking. Further, from a theoretical perspective, not enough work has yet been done to thoughtfully study and analyze how antitrust could, or should, be applied to specific issues involving Big Data. In fact, the lack of empirical evidence, robust theories, or, indeed, legal precedent suggests that there is no cause for concern in this arena with regard to antitrust law and Big Data. All that is available at present are general theories of exclusion applied to this new area. Until antitrust authorities can match theories of harm with specific factual circumstances and show negative competitive harm to consumers, the antitrust case against Big Data is a weak one». But one has seen in para. 4 how in the *Facebook* decision the German competition authority has leap-frogged these doubts by, substantially, qualifying violations of data protection rules as evidence of dominance and of market abuse.

<sup>51</sup> «The dynamics of the digital economy can hardly be measured with the traditional tools of competition law. (...) the analysis is often a static snapshot analysis» (R. Podszun-S. Kreifelds, *Data and competition law*, in V. Mak-E. Tjong Tjin Tai-A. Berlee (eds.), *Research Handbook in Data Science and Law*, Cheltenham-Northampton, 2018, at 195).

sanctions against unfair, deceptive and aggressive commercial practices<sup>52</sup>.

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<sup>52</sup> «Case law does not support the contention that data collection is an antitrust problem. The nature of the relationship between platform users and data collectors is more likely to fall within the realm of consumer protection law (including privacy and data protection law) than competition law. Online data have generated unprecedented consumer benefits in terms of free online services, improved quality of services and rapid innovation. The ability to offer free services via monetization of data sales and advertising is mostly seen as a pro-competitive effect and not harmful from a competition perspective. The absence of monetization would reduce the volume and increase the cost of online services and reduce competition in product markets» (N. Duch-Brown-B.Martens-F. Mueller-Langer, *The economics of ownership, access and trade*, cit., at 21). Similar, but distinguishing, opinions are expressed by M. Botta-K. Wiedemann, *EU Competition Law Enforcement vis-à-vis Exploitative Conducts in the Data Economy. Exploring the Terra Incognita*, MPI Working paper no. 18-08, at 67: «The unilateral imposition of unfair contractual terms seems to be the most likely kind of exploitative conduct to be successfully prosecuted by an N[ational] C[ompetition] A[uthorities] in the near future».