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DATA CIRCULATION AND LEGAL SAFEGUARDS: A EUROPEAN PERSPECTIVE

*Andrea Stazi**

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The collection, analysis and circulation of data are revolutionizing many sectors of our society and economy, including communication, healthcare, education, transport and safety.

For businesses, data analysis and processing offer new opportunities, increasing efficiency and productivity. For the public sector, better use of data enables more efficient, transparent and personalized services. For scientists, open data and open results allow new ways to share, compare and discover new fields of research. For citizens, data are carriers of more information and more advanced services and applications.

From a legal point of view, the collection, analysis and circulation of data raise complex questions regarding ownership, transfer and access to data, and legislators and regulators are looking for effective approaches to guarantee fundamental rights such as the protection of personal data, consumers and competition.

I. DATA REVOLUTION AND DATA-DRIVEN ECONOMY

Nowadays, information technology, internet networks and the connections that are established between these and material things, allow private and public entities to collect, analyze and circulate large amounts of data, and this phenomenon has been summarized in the “big data” expression¹.

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¹ See: OECD, Big Data: Bringing Competition Policy to the Digital Era, October 2016, available at: [https://one.oecd.org/document/DAF/COMP\(2016\)14/en/pdf](https://one.oecd.org/document/DAF/COMP(2016)14/en/pdf), p. 5, according to which: "Big Data is the information asset characterized by such a high volume, velocity and variety to require specific technology and analytical methods for its transformation into value". In doctrine, see: VM Schönberger, T. Range, Reinventing Capitalism in the Age of Big Data, Basic Books, New York, 2018, p. 1 ff.; VM Schönberger, K. Cukier, Big Data. A Revolution That Will Transform How We Live, Work, and Think, John Murray, London, p. 3 ff. A. De Mauro, M. Greco, M. Grimaldi, A formal definition of Big Data based on its essential features, in Library Review, 2016, vol. 65, no. 3, p. 122 ff. Big data differs from "small data" in what are their characteristics, summarized in the so-called 5V, that is, volume, variety, speed, value and veracity. See: ME Stucke, AP Grunes, Big Data and Competition Policy, Oxford University Press, Oxford, 2016, p. 16 ff.; A. Gandomi, M. Haider, Beyond the hype: Big data concepts, methods and analytics, in International Journal of Information Management, 2015, vol. 35, no. 2, p. 137 ff.; T. Lukoianova, VL Rubin, Veracity Rodmap: Is Big Data Objective, Truthful and Credible?, Advances In Classification Research Online, 2014, vol. 24, no. 1, p. 4 ff. In particular, according to the Authors, the 5Vs are the: 1) volume of available data, which is enormous and coincides with the overall size of the phenomenon; 2) variety of data and unstructured data sets, or heterogeneity of sources and formats; 3) speed with which the databases are fed, and the high frequency with which the data circulate from a point of origin to a collection point; 4) value of the data, which depends on the economic potential and the social value that can be attributed to the data as new production factors; 5) veracity of the data, or their authenticity and reliability.

In fact, the emphasis should rather be placed on the concept of "smart data", that is data analyzed using innovative and advanced analysis techniques such as predictive analytics, data mining and data science, which make use of technologies such as cloud computing, sensors of the internet of things, machine learning, artificial intelligence, etc.².

The volume of data produced in the world is growing rapidly, from 33 zettabytes in 2018 to 175 zettabytes expected in 2025³. Data collection can take place, offline or online⁴, through three main channels. First of all, some data are offered voluntarily, that is, intentionally provided by an individual-user of services or products. Secondly, there are the observed data, or behavioral data acquired automatically by the activities of users or machines. Finally, some data are deduced, transforming in a non-trivial way data provided voluntarily and/or observed while they are still in relation with a specific individual or machine⁵.

Currently, the data thus collected can be used in four different forms: i) data at individual level used in a non-anonymous way, relating to specific individuals-users or machines and typically aimed at providing services to individuals themselves; ii) data collected at an individual level used anonymously, for example preferences used for collaborative filtering in the context of film recommendation systems; iii) aggregate data, such as profit and loss information; iv) contextual data, such as for maps or satellite data. Furthermore, data can be generated at different frequencies and access to them can relate to historical or real-time data⁶.

Hence, data is structured and organized through computation - human or automatic - in information,

² In this regard, see: R. Gellert, *Data Protection and Notions of Information: A Conceptual Exploration*, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3284493, p. 2 ff.; A. Gandomi, M. Haider, *Beyond the hype: Big data concepts, methods and analytics*, cit., p. 140, according to whom: "Big data are worthless in a vacuum. Its potential value is unlocked only when leveraged to drive decision making. To enable such evidence-based decision making, organizations need efficient processes to turn high volumes of fast-moving and diverse data into meaningful insights".

³ See: European Commission, *Communication "A European Strategy for Data"*, Brussels, 19.2.2020, COM(2020) 66 final, p. 2; IDC, *Data Age 2025: The Digitization of the World From Edge to Core*, 2018, available at: <https://www.seagate.com/it/it/our-story/data-age-2025>, p. 3.

⁴ Data collection can take place offline, for example, through loyalty programs, credit cards, lotteries and even through purchases. However, consumers use more and more the internet to make purchases or searches, thus continually leaving traces of their needs or preferences. Sometimes user data is also transferred only to be able to use a certain service. In other circumstances, the data is transferred or put online to define the users public identity and compose together with the other tracks left by them on the web their virtual image. See: J. Sylvestre Bergé, S. Grumbach, V. Zeno-Zencovich, *The 'Datasphere', Data Flows beyond Control, and the Challenges for Law and Governance*, in *European Journal of Comparative Law and Governance*, 2018, vol. 5, no. 2, p.149 ff., who distinguish the data, according to the way in which they were created, in: 1) data that are the result of the "datification" of real life objects, which has so far been one of the most common ways in which data were created; 2) data that are created from the outset as such, being the result of intellectual activity or the representation of non-material entities and thus of the information dating (news, information, research results); 3) data produced by people, which are almost entirely digitized since most of the information relating to their activities, past and present, is stored in digital format, and even their physical characteristics are also recorded, collected and processed; 4) data that are automatically generated by digital technologies and that are an evolution of the previous cases.

⁵ See: European Commission, *Competition policy for the digital era - A report by Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer*, April 2019, available at: <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>, p. 24 f.

⁶ In this regard, see again: European Commission, *Competition policy for the digital era*, cit., p. 25 ff.

which in turn is interpreted and used as knowledge. Here new value chains emerge, in which data are organized into information through the use of tools and processing methods, and this information is then interpreted, used and circulated as knowledge through the use of attention⁷.

Through big data analysis, companies and public bodies can obtain information in order to make informed decisions or to develop better products and services, capable of simplifying the daily life of individuals and organizations. In this perspective, the data analysis activity becomes a key factor of economic and social development: it is the so-called “data-driven innovation”⁸.

Data analysis facilitates the optimization of processes and decisions, innovation and the prediction of future events by different economic and social actors, giving rise to the provision of personalized advertising, services or products and the creation or improvement of goods, services and processes in all industrial sectors⁹.

The data-driven innovation, therefore, does not limit itself to involving the areas of information and communication technologies and the high-tech industry. In the medical field, universities and research hospitals can revolutionize healthcare through genetics, diagnostics and personalized medicine. For scientists, open data and open results allow new ways to share, compare and discover new fields of research¹⁰.

As recently highlighted by the European Commission, the data is and will increasingly revolutionize the way we produce, consume and live. The benefits will be perceived in every single aspect of our

⁷ See: R. Gellert, *Data Protection and Notions of Information: A Conceptual Exploration*, cit., p. 3 ff.; C. Ronquillo, LM Currie, P. Rodney, *The Evolution of Data-Information-Knowledge-Wisdom in Nursing Informatics*, in *Advances on Nursing Science*, 2016, vol. 39, no. 1, p. E1, available at: <https://www.ncbi.nlm.nih.gov/pubmed/26836997>; RL Ackoff, *From Data to Wisdom*, in *Journal of Applied Systems Analysis*, 1989, vol. 16, p. 3 ff. Regarding such new value chains, or “dynamic value networks”, see: HR Varian, *Beyond Big Data*, in *Business Economics*, 2014, vol. 49, no. 1, available at: people.ischool.berkeley.edu/~hal/Papers/2013/BeyondBigDataPaperFINAL.pdf, p. 27 ff.; J. Drexler, *Designing Competitive Markets for Industrial Data - Between Propertisation and Access*, Max Planck Institute for Innovation & Competition, Research Paper No. 16-13, October 2016, available at: <https://ssrn.com/abstract=2862975>, p. 17.

⁸ In particular, the OECD defined data-driven innovation like that trend involving both companies and governments for which “techniques and technologies for processing and analyzing large volumes of data, which are commonly known as ‘Big Data’, are becoming an important resource that can lead to new knowledge, drive value creation, and foster new products, processes, and markets”. See the OECD report, *Data-driven Innovation for Growth and Well-being. Interim Synthesis Report*, October 2014 cit., p. 4; OECD again, in the final data-driven innovation report: *Big Data for Growth and Well-Being*, October 2015, cit. stated that data-driven innovation “refers to the use of data and analytics to improve or foster new products, processes, organisational methods and markets”.

⁹ See: European Commission, *Communication “A European Strategy for Data”*, COM (2020) 66, cit., p. 1 ff.; Id., *Communication “Towards a common European data space”*, Brussels, 25 April 2018, COM (2018) 232 final, p. 2 ff.; Id., *Communication “Building a European data economy”*, Brussels, 10.1.2017, COM (2017) 9 final, p. 2 ff.; Federal Trade Commission, *Big Data: A Tool for Inclusion or Exclusion? Understanding the Issues*, January 2016, available at: <https://www.ftc.gov/system/files/documents/reports/big-data-tool-inclusion-or-exclusion-understanding-issues/160106big-data-rpt.pdf>, p. 5; White House Council of Economic Advisers, *Big Data and Differential Pricing*, February 2015, available at: https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf, p. 4.

¹⁰ See: OECD, *Data-Driven Innovation for Growth and Well-Being*, 2014, cit. pp. 18-21; D. Lupton, *Digital Health Technologies and Digital Data: New Ways of Monitoring, Measuring and Commodifying Human Embodiment, Health and Illness*, in F. Xavier Olleros, Majlinda Zhegu (eds.), *Research Handbook on Digital Transformations*, Edward Elgar, Northampton, 2016, available at: <https://ssrn.com/abstract=2552998>, p. 2 ff.; W. Nicholson Price, *Big Data, Patents, and the Future of Medicine*, in *Cardozo Law Review*, 2016, vol. 37, p. 1401 ff.

life, ranging from the consumption of more conscious energy and from the product, material and food traceability, to a healthier life and better health care¹¹.

From an economic point of view, scholars have defined data as non-rival public goods in consumption, non-perishable and by their nature renewable¹².

In the data-driven economy, most economic operations are characterized by the presence of a computer that allows the collection and analysis of data, the personalization of products or services, continuous experimentation at limited costs, the internationalization and commercial and contractual innovation¹³.

The benefits of such dynamics can positively affect the creation and improvement of companies' products and services. On the one hand, this result is achieved through so-called learning effects, as in the case of search engines that increase the quality of search results through data from previous searches¹⁴.

Similarly, many software installed on personal computers or smartphones collect detailed information on the use made of these products, and many websites collect detailed information during user navigation, and use this information in order to identify those parts of the webpages that have been consulted more frequently or to minimize the technical problems¹⁵.

One of the clearest examples of a data-driven industry is perhaps represented by the financial and insurance sector, in which credit institutions, through the exploitation of customer data, can transform their business, create new revenue opportunities, better manage risks and strengthen the fiduciary relationship with customers¹⁶.

Thus, data is considered as a resource of fundamental importance and has become one of the key factors driving the development of the digital economy, so much so as to require organizations to become increasingly data-driven and to lead to support the need to "reinvent the capitalism"¹⁷.

¹¹ See again: European Commission, Communication "A European Strategy for Data", COM (2020) 66, cit., p. 2.

¹² In this regard, see: A. Lambrecht, CE Tucker, Can Big Data Protect a Firm from Competition?, in Competition Policy International, 2017, no. 1, available at: <https://www.competitionpolicyinternational.com/wp-content/uploads/2017/01/CPI-Lambrecht-Tucker.pdf>, p. 1 ff.; DS Tucker and HB Wellford, Big Mistakes Regarding Big Data, in Antitrust Source, December 2014, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2549044, p. 2 ff.; C. Hess, E. Ostrom, Introduction: An Overview of the Knowledge Commons, in Iidd. (eds.), Understanding Knowledge as a Common, MIT Press, Cambridge, 2007, p. 9; HR Varian, Beyond Big Data, cit., p. 27 ff.; JE Stiglitz, Information and the Change in the Paradigm in Economics, in The American Economic Review, 2002, vol. 92, no. 3, p. 460 ff.; C. Shapiro and HR Varian, Information Rules: A Strategic Guide to the Network Economy, Harvard Business School Press, Boston, 1999, p. 24.

¹³ In this perspective, see again: HR Varian, Beyond Big Data, cit., p. 27.

¹⁴ See: D. Sokol, R. Comerford, Does Antitrust Have A Role to Play in Regulating Big Data?, in R. Blair, D. Sokol (eds.), The Cambridge Handbook of Antitrust, Intellectual Property, and High Tech, Cambridge University Press, Cambridge, 2017, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2723693, p. 4.

¹⁵ This information can be used, for example, to extend those parts of the site that have been read most frequently or to speed up the most used functions.

¹⁶ In this regard, see: Accenture, Exploring Next Generation Financial Services: The Big Data Revolution, 2016, available at: https://www.accenture.com/t20170314T051509__w_/nl-en/_acnmedia/PDF-20/Accenture-Next-Generation-Financial.pdf, p. 3 ff.

¹⁷ See: VM Schönberger, T. Ramge, Reinventing Capitalism in the Age of Big Data, cit., p. 87 ff., according to whom the fusion between big data and artificial intelligence will bring a new type of data-driven capitalism, which will

However, although data collection, analysis and circulation allow to improve the quality of the products and services offered, while also increasing economic efficiency, this practice raises a number of complex legal challenges.

In this perspective, in particular, it is necessary to refer to the issues, widely debated in recent years, relating to data ownership and data transfer, and to the legal safeguards for the protection of personal data and competition.

II. LEGAL ISSUES OF DATA CIRCULATION

II.1. *Data ownership*

With regard to the question of who can own the data, three different perspectives have emerged: i) the identification of a new property right on the data, in a private law sense; ii) the framework for the circulation of data within the category of intellectual property; iii) the insertion of the transfer of data in the context of a contract concerning the provision of a service, that is based on data or that takes the form of access to data, perhaps in real time¹⁸.

These perspectives are not mutually exclusive, but resolving the issue of data ownership through one of the aforementioned hypotheses means automatically influencing the circulation and access regime of the related information.

This question is also affected by the contrast between the two legal models that developed in the Western legal tradition in relation to property law¹⁹.

In the civil law tradition, the right of property is rooted in the material possession of a physical object on which to exercise an exclusive right.

In common law, the right of property is not limited to the form of a legal relationship existing between a given entity and a material object, but includes all the legal relations having an economic value for

involve many new challenges for operators and regulators.

¹⁸ On the subject see, among others: European Commission, *The economics of ownership, access and trade in digital data*, JRC Digital Economy Working Paper 2017-01. <https://ec.europa.eu/jrc/sites/jrcsh/files/jrc104756.pdf>, p. 12 ff., where the main positions in the German doctrine, in which the debate originated, are recalled; as well as, among others: F. Padovini, T. Pertot, M. Schmidt-Kessel (eds.), *Rechte an Daten*, Mohr Siebeck, 2020, in particular G. Resta, *Towards a unified regime of data-rights? Rapport de synthèse*, p. 231 ff.; PB Hugenholtz, *Against 'data property'*, in H. Ullrich, P. Drahos, G. Ghidini (eds.), *Kritika: Essays on Intellectual Property*, 2018, vol. 3, p. 48 ff.; V. Zeno Zencovich, *Do "data markets" exist?*, in *MediaLaws - Law and Policy of the Media in a Comparative Perspective*, 2019, no. 2, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3367406, p. 4 ff.; M. Becker, *Rights in Data - Industry 4.0 and the IP Rights of the Future*, in *Zeitschrift für geistiges Eigentum*, 2017, vol. 9, p. 253 ff.; C. Berger, *Property Rights to Personal Data? An Exploration of Commercial Data Law*, *ivi*, p. 340 ff.; as well as the essays collected in: S. Lohsse, R. Schulze, D. Staudenmayer (eds.), *Trading Data in the Digital Economy: Legal Concepts and Tools*, Nomos, Baden-Baden, 2017, in particular the essays of PB Hugenholtz, *Data Property in the System of Intellectual Property Law: Welcome Guest or Misfit?*, p. 75 ff., W. Koerber, *Rights on Data: The EU Communication 'Building a European Data Economy' from an Economic Perspective*, p. 109 ff., and F. Mezzanotte, *Access to Data: The Role of Consent and the Licensing Scheme*, p. 159 ff.; N. Purtova, *Illusion of Personal Data as No One's Property*, in *Law, Innovation, and Technology*, 2015, vol. 7, no. 1, p. 83 ff.

¹⁹ See: J. Sylvestre Bergé, S. Grumbach, V. Zeno-Zencovich, *The 'Datasphere', Data Flows beyond Control, and the Challenges for Law and Governance*, *cit.*, p. 156.

the private parties²⁰.

As regards the data specifically, the aforementioned models show further differences.

In the United States, the approach used since the Computer Software Act²¹ has been extremely protective of all creative and commercial activities implemented through digital technologies. Data, although considered as a resource, has been left substantially free in terms of appropriation, so that the companies have been able to collect it with very few limitations and at very low costs.

From an economic point of view, the result was to encourage companies to develop new services, being able to concentrate their efforts on how to collect and process data without having to worry about the costs associated with the related resources²².

The European approach has been considerably different, given that since the Enlightenment the State intervened actively in the industrial sector and in economic activities in order to bring them into line with general welfare policies.

In this context, the data were not considered as a freely obtainable "raw material" and the legislation that has been adopted over the years, from an economic point of view, has produced a limitation of access to this resource. In some circumstances, in fact, marketability was excluded, while in others the costs associated with data management increased considerably²³.

On top of that, it should be noted that, among the various types of data used for computational purposes, or to derive automatically from the information gathered from the derived knowledge, personal data stand out, which since the beginning at European level have been placed among the rights of personality²⁴.

Since the Charter of Nice²⁵, then, the right to the protection of personal data is considered as a fundamental right and gives its owner the possibility to claim that her data are processed by third parties only in compliance with the rules and principles established by law²⁶. This classification entails the automatic subjection of personal data to a rule of inalienability as for the other person's

²⁰ According to: J. Rifkin, *The Age of Access: The New Culture of Hypercapitalism, Where all of Life is a Paid-For Experience*, TarcherPerigee, New York, 2001, p. 3 ff., this is the reason why common law has been able to adapt more easily to the economic context that has developed since the seventies of the last century. whose wealth has shifted from goods to dematerialized services and relationships and from property to access.

²¹ HR 6934 - 96th Congress: Computer Software Copyright Act of 1980, available at: [https://www.congress.gov/bill/96th-congress/house-bill/6934](https://www.congress.gov/bills/96/computer-software-copyright-act-of-1980).

²² See, among others: J. Sylvestre Bergé, S. Grumbach, V. Zeno-Zencovich, *The 'Datasphere', Data Flows beyond Control, and the Challenges for Law and Governance*, cit., p. 159.

²³ In this regard, see: P. Pałka, *Data Management Law for the 2020s: The Lost Origins and the New Needs*, forthcoming in *Buffalo Law Review*, available at: <https://ssrn.com/abstract=3435608>, p. 1 ff.

²⁴ See: FS Gady, *EU/U.S. Approaches to Data Privacy and the "Brussels Effect": A Comparative Analysis*, in *Georgetown Journal of International Affairs*, 2014, *International Engagement on Cyber IV*, p. 12 ff.; J. Sylvestre Bergé, S. Grumbach, V. Zeno-Zencovich, *The 'Datasphere', Data Flows beyond Control, and the Challenges for Law and Governance*, cit., p. 160 f.

²⁵ Charter of Fundamental Rights of the European Union, 2012/C 326/02, GU C 326 26.10.2012 (revised version of the Charter proclaimed on 7 December 2000).

²⁶ On this point, see: F. Fabbrini, *The EU Charter of Fundamental Rights and the Rights to Data Privacy: The EU Court of Justice as a Human Rights Court*, in S. de Vries, U. Bernitz, S. Weatherill (eds.), *The EU Charter of Fundamental Rights as a Binding Instrument. Five Years Old and Growing* Hart Publishing, Oxford, 2015, p. 261 ff.

attributes²⁷.

However, the digital economy is characterized by a thriving market which has as its object the commercial exploitation of the attributes of the person, from the name, to the image, to the data²⁸.

In this new framework, a first perspective, faithful to the traditional approach which denies the nature of alienable goods to personal data, considers any calculation hypothesis of the right a liability for an illicit fact, rendered inoperative by virtue of the consent of the right-holder²⁹.

A second and different reading of the phenomenon, instead, points out the commercial value assumed by the attributes of the personality and specifically by the personal data, and assimilates them to the goods in a legal sense, commerciable through the contractual instrument. In this perspective, those who acquire the consent of others to the processing of data do not acquire the consent of the entitled person but the specific information³⁰.

This reading appears more coherent with the economic value that the data has assumed and is reflected, moreover, not only in the business strategies, with respect to which the wealth of information is increasingly considered as a fundamental asset, but also in the assessments made on the point by the EU legislator³¹.

However, the possibility of processing personal data as "tradable commodities" entails, in fact, a whole series of further consequences. From a legal point of view, the data would be destined to be marketed by the original right-holder and it is not clear whether the latter is actually authorized to transfer her data.

In the event that the data is protected by legal rules, as occurs in relation to personal data or information protected by intellectual property law, marketability automatically entails the possibility

²⁷ In this regard, see eg: G. Malgieri, R.I.P.: Rest in Privacy or Rest in (Quasi-)Property? Personal Data Protection of Deceased Data Subjects between Theoretical Scenarios and National Solutions, in R. Leenes et al. (eds.), *Data Protection and Privacy: The Internet of Bodies*, Hart, Oxford, 2018, p. 300 ff.

²⁸ See: European Commission, *The economics of ownership, access and trade in digital data*, cit., p. 4 ff.; D. Ciuriak, M. Ptashkina, *Towards a Robust Architecture for the Regulation of Data and Digital Trade*, CIGI Paper no. 240, Centre for International Governance Innovation, Waterloo, 2020, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3423394, p. 1 ff.; PB Hugenholtz, *Data Property in the System of Intellectual Property Law: Welcome Guest or Misfit?*, cit., p. 75 ff.

²⁹ In this regard, see among others: B. Van Alsenoy, *Liability under EU Data Protection Law From Directive 95/46 to the General Data Protection Regulation*, in *Jipitec*, 2017, vol. 7, no. 3, p. 271 ff.; AD Moore, *Privacy, Interests and Inalienable Rights*, in *Moral Philosophy and Politics*, 2018, vol. 5, no. 2 p. 327 ff. On the relation with competition, see: N. Economides, I. Lianos, *Restrictions on Privacy and Exploitation in the Digital Economy: A Competition Law Perspective*, CLES Research Paper Series 5/2019, available at: <https://www.ucl.ac.uk/cles/sites/cles/files/cles-5-2019.pdf>, p. 1 ff. For empirical studies on access rights in practice, see: J. Ausloos, P. Dewitte, *Shattering One-Way Mirrors. Data Subject Access Rights in Practice*, in *International Data Privacy Law*, 2018, vol. 8, no. 1, p. 4 ff.; M. Borghi, F. Ferretti, S. Karapapa, *Online Data Processing Consent Under EU Law: A Theoretical Framework and Empirical Evidence from the UK*, in *International Journal of Law and Information Technology*, 2013, vol. 21, no. 2, p. 109 ff.

³⁰ With regard to the personal data economy, and also to the related pay for privacy model that requires consumers to pay an additional fee to prevent their data from being collected and mined for advertising purposes, see among others: SA Elvy, *Paying for Privacy and the Personal Data Economy*, in *Columbia Law Review*, 2017, vol. 117, no. 6, p. 1369 ff.; V. Zeno-Zencovich, *Do "data markets" exist?*, cit., p. 1 ff.

³¹ See eg: Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services, OJ L 136 22.5.2019, whereas 24-25 and art. 3.

for the right-holder to enter into data contracts. This circumstance determines the existence of secondary markets, or the possibility for the successor in title to resell the acquired data³².

Moreover, the difficulty emerges of applying the traditional proprietary model to entities such as data, which takes as a reference the asset as a material thing that can be the subject of rights and, through the contractual instrument, a circulatory affair³³.

Digital entities can be reproduced without limits, a circumstance that makes the idea of exclusivity modeled on the concept of property of tangible objects rather illusory. To speak of property in the Romanistic sense of the term appears, therefore, particularly difficult for both conceptual and comparative reasons³⁴.

If we consider the dynamics of the data economy, which is characterized by the use of specific techniques for big data analysis and information processing practices based on artificial intelligence, the situation is further complicated. In this context, in fact, an individual's decision about the possibility of processing her data inevitably falls on others, producing network effects³⁵.

The hypothesis that the individual can actually exercise control over her data, or that she can manage to protect her property right, appears difficult to configure. This is partly due to the approach adopted at European level regarding the definition of personal data, given that the latter depends on the context of reference. This circumstance makes the configuration of a property right that can be transparent very complex both in terms of object and ownership³⁶.

In particular, the claim by the owner to exercise the rights attributed to her is considered illusory, since those data once acquired can be used, transferred, processed, transferred, sometimes even without her knowledge and in other parts of the globe.

Whatever the relationship between personal data and the traditional category of personality rights, in the context of big data it is substantially impossible to be able to trace and control data once it is mixed with other data³⁷.

³² See: G. Malgieri, B. Custers, Pricing Privacy: The Right to Know the Value of Your Personal Data, in *Computer Law & Security Review*, 2018, vol. 34, no. 2, p. 289 ff.; H. Zech, Data as a Tradeable Commodity, in A. De Franceschi (ed.), *European Contract Law and the Digital Single Market. The Implications of the Digital Revolution*, Intersentia, Cambridge, 2016, p. 51 ff.

³³ Furthermore, the data, being intangible entities, have an intrinsic link more with telecommunications networks than with a specific territory, which is why they cannot even be rooted in the territory, and therefore in the law, of a single State. In this regard, it should be borne in mind that in some legal systems, in particular in the German one, the possibility of qualifying an entity as an asset is normally linked to the corporeality of the object. On such issues, see among others: G. Resta, Towards a unified regime of data-rights? Rapport de synthèse, cit., p. 231 ff.; V. Zeno Zencovich, Do "data markets" exist?, cit., p. 4 f.

³⁴ Thus: J. Sylvestre Bergé, S. Grumbach, V. Zeno-Zencovich, The 'Datasphere', Data Flows beyond Control, and the Challenges for Law and Governance, cit., p. 161 ff.

³⁵ See: N. Purtova, Do Property Rights in Personal Data Make Sense after the Big Data Turn?, Tilburg Law School Legal Studies Research Paper Series, n. 21/2017, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3070228, p. 1 ff.

³⁶ See J. Sylvestre Bergé, S. Grumbach, V. Zeno-Zencovich, The 'Datasphere', Data Flows beyond Control, and the Challenges for Law and Governance, cit., p. 162 f.; N. Purtova, Do Property Rights in Personal Data Make Sense after the Big Data Turn ?, cit., p. 13 f.

³⁷ In this regard, see again: N. Purtova, Do Property Rights in Personal Data Make Sense after the Big Data Turn ?, cit., p. 11 f.

In relation to these entities, therefore, it would be more plausible to envisage a generic "ownership" of the data, which attributes to the subject, in the wake of the consolidated tradition of intangible assets, a series of rights of use and exclusive exploitation of the information, and correlatives limits and remedies to deal with unauthorized use or injury³⁸.

However, the traditional conception of property rights as the exclusive right by which one exercises the right to enjoy and dispose of things fully and exclusively does not seem to fit properly in the context of the data economy.

Therefore, other scholars deem preferable the creation of a fluid and relational property right, that is, a "quasi-property" expressed on the data through the use of the regulation of trade secrets³⁹. This approach would seem more flexible and able to meet the challenges posed by the need to take advantage of the user data in the new economic context⁴⁰.

Another part of the doctrine, in line with this, believe that the regulation of the ownership of personal data could also be traced back to the rules on the circulation of intangible assets, and included in the system of exclusive property rights⁴¹.

In this regard, on the other hand, the production of data, unlike entities traditionally protected by intellectual property, is due to natural phenomena or human behavior that exist regardless of the existence of an incentive provided by a exclusive right, which is the reason why the introduction of such a right would have no reason to exist⁴².

In particular, as concerns personal data, the fact that the data is not a creation of the interested party but leaves aside an act of the individual leads to exclude its possible inclusion among the exclusive rights on intangible assets⁴³.

However, the decisive argument against the introduction of data exclusivity appears, in the

³⁸ In this perspective, see again: J. Sylvestre Bergé, S. Grumbach, V. Zeno-Zencovich, *The 'Datasphere', Data Flows beyond Control, and the Challenges for Law and Governance*, cit., p. 161 f.

³⁹ In this sense, the application of a commercial license regime on personal data could also be considered, which would be treated as one's trade secrets.

⁴⁰ See: G. Malgieri, R.I.P.: Rest in Privacy or Rest in (Quasi-)Property? Personal Data Protection of Deceased Data Subjects between Theoretical Scenarios and National Solutions, cit., p. 300 ff.; Id., "Ownership" of Customer (Big) Data in the European Union: Quasi-Property as Comparative Solution?, in *Journal of Internet Law*, 2016, vol. 20, no. 5, p. 3 ff.; S. Balganes, Quasi-Property: Like, but not Quite Property, *University of Pennsylvania Law Review*, 2012, vol. 160, p. 1889 ff.; SG Davies, Re-engineering the Right to Privacy: How Privacy Has Been Transformed from a Right to a Commodity, in PE Agre, M. Rotenberg (eds.), *Technology & Privacy: The New Landscape*, MIT Press, Cambridge, 1997, p. 125 ff.

⁴¹ See, eg: L. Trakman, R. Walters, B. Zeller, Is Privacy and Personal Data Set to Become the New Intellectual Property?, in *IIC - International Review of Intellectual Property and Competition Law*, 2019, vol. 50, no. 8, p. 937 ff.

⁴² On this point, see: H. Zech, A legal framework for a data economy in the European Digital Single Market: rights to use data, in *Journal of Intellectual Property Law & Practice*, 2016, vol. 11, no. 6, p. 460 ff.

⁴³ A substantial difference between intellectual property rights and rights on personal data relates to the fact that, while the former presuppose the manifestation of a human activity aimed at the creation of the intangible asset, which then also constitutes the title of the exclusivity, in the case of personal data the entity subject to protection is not created by the interested party, but it is simply referable to her and the title of belonging consists in this connection with the person. Therefore, if the purpose of intellectual property is to encourage such creations of human activity, the protection of personal data ends up remaining extraneous to this system. See: J. Drexler, *Designing Competitive Markets for Industrial Data - Between Propertisation and Access*, Max Planck Institute for Innovation & Competition, Research Paper No. 16-13, October 2016, available at: <https://ssrn.com/abstract=2862975>, p. 23.

perspective of computational innovation, the impact that such a regulation could have on the circulation of knowledge, innovation and competition⁴⁴.

The introduction of an exclusivity would reduce the spaces of free appropriation of the information currently available, while the presumption that this reduction would be compensated by the greater aptitude for negotiating circulation appears arbitrary⁴⁵.

From an economic point of view, therefore, the introduction of a new type of exclusive right on data does not seem to find justification, especially since it could bring in fact an obstacle to the functioning of the digital economy, given that in this context the free access to data is extremely important in order to guarantee the development of innovation and the correct functioning of the markets⁴⁶.

In the same perspective, the introduction of a protectionist regime on the algorithms used to analyse the data could also result in a limitation of the freedom of economic initiative. Therefore, it does not seem necessary to strengthen the *sui generis* regulation of the directive 96/9/EC on the protection of databases⁴⁷.

II.2. *Data transfer*

The circulation of personal and non-personal data can take place in different ways from the transfer of an asset, rather focusing on the provision of a service.

This happens, for example, in relation to the service offered by Google Maps, which is based on the data that Google collects and analyzes by circulating the related information at a later time. In this case, Google does not exchange the data directly, simply analyzing it and then subsequently offering a service based on the information collected⁴⁸.

Another possibility coincides, then, with the collection of data and the offer of an access service to the same, sometimes in real time. In this case, from a legal point of view, it will not be a matter of

⁴⁴ See, among others: W. Kerber, A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis, in *Gewerblicher Rechtsschutz und Urheberrecht, Internationaler Teil (GRUR Int)*, 2016, vol. 65, no. 11, p. 989 ff.; J. Drexler, Designing Competitive Markets for Industrial Data - Between Propertisation and Access, cit., pp. 30-33.

⁴⁵ See: J. Drexler, RM Hilty, L. Desautettes, F. Greiner, D. Kim, H. Richter, G. Surblytè, K. Wiedemann, Data Ownership and Access to Data - Position Statement of the Max Planck Institute for Innovation & Competition of 16 August 2016 on the Current European Debate, available at: <http://ssrn.com/abstract=2833165>, pp. 2-8. A further argument against the provision of an exclusive right on data would be that relating to the violation of the principle of the *numerus clausus* of real rights and intellectual property rights. On the subject, see: G. Ghidini, Rethinking Intellectual Property. Balancing Conflicts of Interests in the Constitutional Paradigm, Edward Elgar, Cheltenham, 2018, p. 2 ff.; in a comparative-critical key, see: NM Davidson, Standardization and Pluralism in Property Law, in *Vanderbilt Law Review*, 2008, vol. 61, p. 1658 ff.

⁴⁶ In this sense, see: J. Drexler, RM Hilty, L. Desautettes, F. Greiner, D. Kim, H. Richter, G. Surblytè, K. Wiedemann, Data Ownership and Access to Data, cit., p. 2 ff.

⁴⁷ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ L 77 27.3.1996. In relation to this provision, it has been asked, rather, whether the existence and exercise of copyright on databases could constitute excessive barriers to the entry into the market of new actors in contexts characterized by the presence of few companies. See: V. Falce, Copyrights on data and competition policy in the Digital Single Market Strategy, in *Rivista Italiana di Antitrust*, 2018, no. 1, available at: <http://iar.agcm.it/article/view/12871>, p. 32 ff.; J. Drexler, RM Hilty, L. Desautettes, F. Greiner, D. Kim, H. Richter, G. Surblytè, K. Wiedemann, Data Ownership and Access to Data, cit., p. 4.

⁴⁸ In this regard, see: H. Zech, Data as a Tradeable Commodity - Implications for Contract Law, cit., p. 3 f.

transferring data but of offering a service based on access to the relative information.

Upstream marketing, that is at the data collection level, is a topic that has been addressed by the European legislator in the Directive 96/9/EC. Today, however, the data collected in the databases are not marketed or licensed, while the provision of services based on access to the various databases is much more frequent⁴⁹.

In certain circumstances, the data access service could also concern raw data, for example in cases where real-time access to a measuring device that generates data is offered. This hypothesis has been confirmed by the European Commission, which, in order to facilitate the circulation of data between companies, has promoted the use of models designed to guarantee an improvement in the conditions of access to data and the related analysis⁵⁰.

From a regulatory point of view, at European level, as part of the Digital Single Market Strategy, in the Regulation 2018/1807 on the free flow of non-personal data⁵¹, the original option of introducing a new property right on the data seems to have been abandoned, in favor of the identification of a set of principles to regulate the access and circulation of information available in innovation markets⁵².

Thus, as already noted in the previous paragraph with regard to the issue of ownership and the GDPR provisions on personal data, the attempt to apply traditional legal doctrines to exchanges concerning data does not seem to adapt to these cases adequately. In such circumstances, in fact, not only there is uncertainty about the applicable law, but also about what the rights claimed by the parties are and how these rights can circulate.

The relevant data in the current context are presented, in fact, as entities partially protected by a series of different rules, similar to property law or property-related interests, such as the regulation on intellectual property or trade secrets, and by rules that limit their marketing, such as privacy or consumer protection⁵³.

⁴⁹ See again: H. Zech, *Data as a Tradeable Commodity - Implications for Contract Law*, cit., p. 5.

⁵⁰ See: European Commission, *Communication "A European Strategy for Data"*, COM (2020) 66, cit., p. 6 ff.; Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on the opening of data and the re-use of public sector information (recast), OJ L 172 26.6.2019; *Communication "Towards a common European data space"*, COM (2018) 232 final, cit., as well as the measures proposed together with the aforementioned Communication which form part of the package on the common data space and include: the Recommendation (EU) 2018/790 of 25 April 2018 on access to and preservation of scientific information, C/2018/2375, OJ L 134 31.5.2018; the Guidance on sharing private sector data in the European data economy, 25 April 2018, SWD (2018) 125 final, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2018:125:FIN>; and before the Communication "Building a European data economy", 10 January 2017, COM (2017) 9 final, cit., p. 9 f.

⁵¹ Regulation (EU) 2018/1807 of the European Parliament and of the Council of 14 November 2018 on a framework for the free flow of non-personal data in the European Union, OJ L 303 28.11.2018.

⁵² See: J. Drexler, *Legal Challenges of the Changing Role of Personal and Non-Personal Data in the Data Economy*, in A. De Franceschi, R. Schulze (eds.), *Digital Revolution - New Challenges for Law*, Intersentia, Cambridge, 2019, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3274519, p. 3 ff.; V. Falce, *Copyrights on data and competition policy in the Digital Single Market Strategy*, cit., p. 33.

⁵³ See: C. Wendehorst, N. Cohen, S. Weise, *Feasibility Study ALI-ELI Principles for Data Economy*, Draft Framework for Discussion, 25 August 2017, available at: https://europeanlawinstitute.eu/fileadmin/user_upload/p_eli/Projects/Data_Economy/Feasibility_of_ALI-ELI_Principles_for_a_Data_Economy_2017-08-25_002_.pdf, p. 2; J. Drexler, *Designing Competitive Markets for*

In this scenario, it seems desirable to introduce a series of common principles at transnational level to facilitate the creation of new contractual models, or specific provisions that the parties can use on a voluntary basis in the context of the relative negotiations. These principles could also be used as a source of inspiration and guide for the work of legislators, regulators and courts, as well as for co-regulatory or self-regulatory approaches⁵⁴.

In order to proceed in this direction and facilitate the circulation and transfer of data, however, some considerations must be kept in mind. First of all, the right of access is not a right that can be assimilated to property or to another real right since by definition it does not necessarily have to be of an exclusive nature.

The right of access is not transferred, only granted. This entails the possibility for a multiplicity of subjects to access the same data simultaneously, without prejudice to the hypothesis in which the exclusivity derives from the secrecy of the information or from technical protection measures⁵⁵.

Moreover, the distinction between the various negotiation cases aimed at the circulation of data cannot be anchored to the criterion of the transfer of factual power. In some cases the counterparty could be authorized to access the data exclusively, but in others the granting of access to the data could be part of a delivery service in progress, or it could be in the offer of a simple access service. In these latter circumstances, the criterion of transfer of factual power is inapplicable⁵⁶.

The progressive growth of online contracts based on the exchange and processing of data, in particular personal data, shows that the data itself is often becoming the object of the performance. In relation to this hypothesis, as noted above, the basic approach that underlies the data protection rules, based on personality rights, does not seem to conflict.

In such a perspective, then, the question arises whether the data transfer contract relates to a service consisting of the provision of personal data or rather the authorization to process them⁵⁷.

Industrial Data - Between Propertisation and Access, cit., p. 19 ff.

⁵⁴ In this sense, see: European Commission, Guidance on sharing private sector data in the European data economy, SWD (2018) 125 final, cit.; C. Wendehorst, N. Cohen, S. Weise, ALI-ELI Feasibility study Principles for Data Economy, Draft Framework for Discussion, 25 August 2017, cit., p. 3.

⁵⁵ See: H. Zech, Data as a Tradeable Commodity - Implications for Contract Law, cit., pp. 6 and 11; J. Rifkin, The Age of Access, cit., p. 6 ff., according to whom the age of access is the change that involves the transition from an economy dominated by the market and the concepts of goods and property, towards an economy dominated by values such as culture, information and relationships. In such a new age, in which markets give way to networks, what differentiates user-consumers is the possibility or not of accessing the network, that is, of entering the virtual world that the Internet offers and thus being able to take advantage of the various services. In this scenario, it is no longer a question of owning goods, but rather of having experiences.

⁵⁶ In this regard, see: H. Zech, Data as a Tradeable Commodity - Implications for Contract Law, cit., p. 6; J. Rifkin, The Age of Access, cit., pp. 7-9, who highlights that on the network the suppliers do not sell, but maintain ownership of the things, so that the user accesses what she wants in a non-fixed way and only for a certain period of time.

⁵⁷ See: P. Hacker, Regulating the Economic Impact of Data as Counter-Performance: From the Illegality Doctrine to the Unfair Contract Terms Directive, forthcoming in S. Lohsse, R. Schulze, D. Staudenmayer (eds.), Data as Counter-Performance: Contract Law 2.0?, Hart/Nomos, 2020, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3391772, p. 1 ff.; L. Drechsler, Data As Counter-Performance: A New Way Forward or a Step Back for the Fundamental Right of Data Protection?, in Jusletter IT February 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3329345, p. 1 ff.; A. Metzger, Data as Counter-Performance What Rights and Duties do Parties Have?, in Jipitec, 2017, vol. 8, no. 1, p. 2 ff.

In relation to these types of relations, US scholars stated that the contracts by which data are provided for goods or services should be seen in the context of an exchange of services each with its own value.

In particular, the contractual paradigm should no longer be that of “data as alienable goods” but rather that of “data services”. Thus, the subject of the exchange would be: a) access to personal information, in exchange for b) access to the services provided by the data aggregator⁵⁸.

III. DATA CIRCULATION AND LEGAL SAFEGUARDS

III.1. *Protection of personal data*

In the data economy, legislators, regulators and companies are looking for effective instruments to guarantee fundamental rights such as the protection of personal data, consumers and competition⁵⁹. From the analysis of big data, in addition to the positive effects mentioned above, potential violations of the private sphere of individuals could also derive. The use of personal data for the creation and analysis of large data sets has revealed a series of problematic aspects that do not seem to have been solved even after the entry into force of the GDPR⁶⁰.

The current technological development, according to some scholars, would require conceptual and practical changes that the GDPR does not take into consideration. In fact, in relation to big data, the classic data protection principles enshrined at European level would no longer apply, including for example that of “data minimization” or the limitation of data collection for specific purposes, appearing incompatible with the reference context⁶¹.

Moreover, according to other scholars, the need felt by the European legislator to guarantee respect for fundamental rights and in particular the privacy of individuals, would clash with the market practice for which personal data are increasingly “treated as a 'de facto' property”⁶². As already noted in the previous paragraph, however, there are no justifications that from an economic point of view appear convincing in order to introduce a new exclusive right to data.

In the opposite direction, other scholars highlight how the protection of the fundamental rights of the individual should not necessarily be pursued through a de-capitalization of the data and legal acts that determine their circulation, but through a precise control of the acts of private autonomy aimed

⁵⁸ See: AM Matwyshyn, Privacy, the Hacker Way, in *Southern California Law Review*, 2013, vol. 87, no. 1, pp. 3-5.

⁵⁹ For an overview of such issues, see among others: M. Bakhoun, B. Conde Gallego, M. Mackenrodt, G. Surblytė-Namavičienė, *Personal Data in Competition, Consumer Protection and Intellectual Property Law. Towards a Holistic Approach* ?, Springer, Berlin, 2018.

⁶⁰ See, among others: C. Crawford, J. Shultz, Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms, in *Boston College Law Review*, 2013, vol. 55, no. 1, p. 93 ff.

⁶¹ See: TZ Zarsky, Incompatible: The GDPR in the Age of Big Data, in *Seton Hall Law Review*, 2017, vol. 47, no. 4 (2), p. 995 ff.

⁶² In this regard, see: G. Malgieri, “Ownership” of Customer (Big) Data in the European Union: Quasi-Property as Comparative Solution ?, *cit.*, p. 6.

to ensure the protection of the incompressible values of the personality⁶³.

Thus, the GDPR rules on consent freely given by the interested party can be key. In particular, the so-called consent granularity would allow not only the exchanges between personal data and other services, but also the processing of data for purposes other than those related to the execution of the main service.

If personal data are considered as the actual counter-performance for the service, all the relationship established between the parties can be based on a consent not only of an authorization type, but rather a negotiating one, that is to say constituting legal relations with patrimonial content. The monetization of personal data would not have anything unseemly or legally illicit in itself, provided that the consent in question represents an effective expression of the power of self-determination⁶⁴.

In such a perspective, now, according to the Directive 2019/770 on the supply of digital content and services, content or services violating the GDPR would trigger the remedies for non-conformity with the contract under the Directive⁶⁵.

III.2. *Protection of competition*

The issues related to data protection in certain circumstances also give rise to possible overlaps with those on competition, so that both in Europe and in many countries is a growing debate has developed about the opportunity of use or review antitrust regulation to counter the risks associated with the collection and use of users' personal data⁶⁶.

⁶³ See: G. Resta, Towards a unified regime of data-rights? Rapport de synthèse, cit., pp. 239-241; C. Langhanke, M. Schmidt-Kessel, Consumer Data as Consideration, in *EuCML - Journal of European Consumer and Market Law*, 2015, no. 6, p. 218 ff.

⁶⁴ In line with this, the GDPR rule of the constant revocability of consent - which cannot be derogated by the private autonomy - in the onerous circulation of personal data could also be read in the sense that the principle of the legal force of the contract gives way to the need to maintain the power of self-determination in relation to the attributes of one's personality. The GDPR was adopted, in fact, following a long regulatory process, at a crucial moment for the development of the digital ecosystem, since on the one hand the risks associated with the protection of individuals' fundamental rights and freedoms emerge, but on the other hand there are great opportunities to create value, promote collective well-being and improve various social aspects. See, in addition to what has been highlighted so far: TZ Zarsky, *Incompatible: The GDPR in the Age of Big Data*, cit., p. 996 ff.

⁶⁵ Directive (EU) 2019/770 on certain aspects concerning contracts for the supply of digital content and digital services, cit., art. 14. See: L. Drechsler, *Data As Counter-Performance: A New Way Forward or a Step Back for the Fundamental Right of Data Protection?*, cit., p. 7 f.; G. Spindler, *Contracts For the Supply of Digital Content – Scope of application and basic approach – Proposal of the Commission for a Directive on contracts for the supply of digital content*, in *European Review of Contract Law*, 2016, vol. 12, no. 3, p. 183 ff. (194 f.).

⁶⁶ See: European Commission, *The economics of ownership, access and trade in digital data*, cit., p. 19 ff.; in Italy: *Autorità garante della concorrenza e del mercato - Autorità per le garanzie nelle comunicazioni - Garante per la protezione dei dati personali, Indagine conoscitiva sui big data*, February 2020, available at: https://www.agcm.it/dotcmsdoc/allegati-news/IC_Big%20data_imp.pdf; in the United Kingdom: *Unlocking digital competition, Report of the Digital Competition Expert Panel, so-called Furman Report*, March 2019, available at: <https://www.gov.uk/government/publications/unlocking-digital-competition-report-of-the-digital-competition-expert-panel>; in Germany: H. Schweitzer, J. Haucap, W. Kerber, R. Welker, *Studie zur "Modernisierung der Missbrauchsaufsicht für marktmächtige Unternehmen" - Projekt im Auftrag des Bundesministeriums für Wirtschaft und Energie*, September 2018, available at: <https://www.bmwi.de/Redaktion/DE/Pressemitteilungen/2018/20180904-kartellrechtliche-missbrauchsaufsicht-fit-fuer-internetgigant-machen.html>; in the United States, vice versa: BA Nigro Jr (Deputy Assistant Attorney General Antitrust Division US Department of Justice), *"Big Data" and Competition for the Market*, December 2017, available at: <https://www.justice.gov/opa/speech/file/1017701/download>, p. 1 ff. In doctrine, see ex multis: M. Bakhom, B.

In particular, some scholars have highlighted how the exchanges of data in the current context occur more and more frequently for free services, and this practice can violate the law on the protection of personal data in such a subtle way as to make consumers unaware of the same violation, or induce them to neglect the protection of their privacy and to ignore the value of their data⁶⁷.

The use of algorithms and artificial intelligence for big data analysis and user-consumer profiling, therefore, could jeopardize the control that they should have over the confidentiality of their private sphere, as well as their preferences and consumer habits⁶⁸.

The decision on the Facebook case taken in February 2019 by the German Competition Authority, for example, stated that the conduct as a result of which companies collect personal data can be not only harmful to privacy, but also abusive as unfair and unjustifiably burdensome⁶⁹.

In the context of the data economy, therefore, a growing debate concerns the possibility of extending

Conde Gallego, M. Mackenrodt, G. Surblytė-Namavičienė, Personal Data in Competition, Consumer Protection and Intellectual Property Law. Towards a Holistic Approach?, cit., p. 121 ff.; J. Drexl, Designing Competitive Markets for Industrial Data - Between Propertization and Access, cit., p. 41 ff.; G. Pitruzzella, Big Data and antitrust enforcement, in *Rivista italiana di Antitrust*, 2017, no. 1, p. 77 ff.; G. Colangelo, M. Maggiolino, Big data, data protection and antitrust in the wake of the Bunderskartellamt case against Facebook, *ivi*, p. 104 ff., and *Iidd.*, Big Data as Misleading Facilities, in *European Competition Journal*, 2017, vol. 13, no. 2, available at: <https://ssrn.com/abstract=2978465>, p. 1 ff.; DL Rubinfeld, MS Gal, Access Barriers to Big Data, in *Arizona Law Review*, 2017, vol. 59, p. 339 ff.; X. Boutin, G. Clemens, Defining "Big Data" in Antitrust, in *Competition Policy International: Antitrust Chronicle* 2017, vol. 1, no. 2, p. 22 ff.; DD Sokol, R. Comerford, Antitrust and Regulating Big Data, in *George Mason Law Review*, 2016, vol. 23, no. 5, p. 1129 ff.; JD Wright, E. Dorsey, Antitrust Analysis of Big Data, in *Competition Law & Policy Debate*, 2016, vol. 2, no. 4, p. 35 ff.; A. Lambrecht, CE Tucker, Can Big Data Protect a Firm from Competition?, cit., p. 1 ff.

⁶⁷ See: G. Colangelo, M. Maggiolino, Big data, data protection and antitrust in the wake of the Bunderskartellamt case against Facebook, cit., p. 105; *Iidd.*, Data Accumulation and the Privacy-Antitrust Interface: Insights from the Facebook Case for the EU and the U.S., in *International Data Privacy Law*, 2018, vol. 8, no. 3, p. 224 ff.; K. Kemp, Concealed Data Practices and Competition Law: Why Privacy Matters, UNSW Law Research Paper No. 19-53, 2019, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3432769.

⁶⁸ On the problematic issues related to the use of big data and algorithms in consumer relations, such as discrimination, collusion, etc. - which do not fall within the scope of this essay - see: OECD, Algorithms and Collusion: Competition Policy in the Digital Age, 2017, available at: <http://www.oecd.org/competition/algorithms-collusion-competition-policy-in-the-digital-age.htm>; J. Miklós-Thal, C. Tucker, Collusion by Algorithm: Does Better Demand Prediction Facilitate Coordination Between Sellers?, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3261273, p. 1 ff.; I. Graef, Algorithms and Fairness: What Role for Competition Law in Targeting Price Discrimination Towards End Consumers?, in *Columbia Journal of European Law*, 2018, vol. 24, no. 3, p. 541 ff.; A. Ezrachi, ME Stucke, *Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy*, Harvard University Press, Cambridge (Mass.), 2016.

⁶⁹ The Bunderskartellamt, with a ruling of 6 February 2019, stated that Facebook abused its dominant position in the market of social networks by imposing some terms and conditions for the collection of user data in violation of the privacy law. More specifically, the German Authority considered that the extent to which Facebook collects, merges and uses data in user accounts through Facebook-owned services such as Instagram or WhatsApp, but also third-party websites that include interfaces such as "like" or "share" buttons, constitutes an abuse of a dominant position; see:

https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Pressemitteilungen/2019/07/07_02_2019_Facebook.pdf?__blob=publicationFile&v=2. In doctrine, see: G. Colangelo, M. Maggiolino, Antitrust über alles. Whither competition law after Facebook?, in *World Competition*, 2019, vol. 42, p. 355 ff.; VHSE Robertson, The Theory of Harm in the Bunderskartellamt's Facebook Decision, in *Competition Policy International*, March 2019, available at: <https://www.competitionpolicyinternational.com/wp-content/uploads/2019/03/EU-News-Column-March-2019-Full-1.pdf>. Furthermore, the question remains open as, first, in August 2019 the Düsseldorf Regional Court resolved the suspension of the decision, considering that the disputed data policy did not cause any significant competitive damage (OLG Düsseldorf, 26 August 2019, Case VI-Kart 1/19 (V); for a comment, see: G. Colangelo, Facebook and the Bunderskartellamt's Winter of Discontent, in *Competition Policy International*, September 2019, available at: https://www.competitionpolicyinternational.com/facebook-and-bundeskartellamts-winter-of-discontent/#_edn2), and, then, the Bunderskartellamt appealed to the Federal Supreme Court.

the scope of intervention of the antitrust authorities by incorporating the possession of large amounts of data in the context of the criteria for analyzing mergers and any anti-competitive practices⁷⁰.

This is mainly to verify whether the control of large amounts of data can offer companies an unfair advantage over competitors, allowing them to use the relative market power to harm consumers and competitors⁷¹.

The fact that a company is in possession of big data, in fact, does not seem to necessarily imply that it has power in the markets for generating and collecting that data. Similarly, it would not seem possible to establish a real causal link between the company's possession of big data and the fact that the same company can exercise power in the markets that are located downstream of the generation and collection of data⁷².

The issue of the possibility that data could contribute to increase market power, however, is at the heart of institutional assessments and academic debates, which essentially rest on two opposite poles: on the one hand, there are those who are in favor of the competition law as a solution to regulate the

⁷⁰ The European Commissioner for Competition Margrethe Vestager, in a speech at the DLD Conference in Munich of 17 January 2016, available at: https://ec.europa.eu/competition/speeches/index_2016.html, stated that the fact that companies can analyze large amounts of data to improve services is not a problem. On the other hand, according to the Commissioner, if few companies control the data necessary to satisfy customers and reduce costs, this could give them the power to expel competitors from the market, with the risk that there are not enough incentives to continue using Big Data to better serve customers. "If a company's use of data is so bad for competition that it outweighs the benefits, we may have to step in to restore a level playing field". However, having a lot of information does not necessarily equate to having greater competitive strength because the value of this information can vary over time: "It might not be easy to build a strong market position using data that quickly goes out of date. So we need to look at the type of data, to see if it stays valuable - explained the Commissioner - We also need to ask why competitors couldn't get hold of equally good information. What's to stop them from collecting the same data from their customers, or buying it from a data analytics company?". See also, with reference to the merger operations: M. Vestager, Big Data and Competition, EDPS-BEUC Conference on Big Data, Brussels, 29 September 2016, available at: https://ec.europa.eu/commission/commissioners/2014-2019/Vestager/announcements/big-data-and-competition_en; in doctrine, see: A. Giannaccari, The Big Data Competition Story: Theoretical Approaches and the First Enforcement Cases, EUI Department of Law Research Paper No. 2018/10, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3244419, p. 8 ff.

⁷¹ In this regard, see among others: J. Kennedy, The Myth of Data Monopoly: Why Antitrust Concerns About Data Are Overblown, in Information Technology & Innovation Foundation, March 2017, available at: <http://www2.itif.org/2017-data-competition.pdf>, p. 1 ff.; G. Colangelo, M. Maggiolino, Big Data as Misleading Facilities, cit., p. 5 ff.; T. Körber, Is Knowledge (Market) Power? - On the Relationship Between Data Protection, "Data Power" and Competition Law, in NZKart 2016, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3112232, p. 1 ff.; DL Rubinfeld, MS Gal, Access Barriers to Big Data, cit., p. 11 ff.; DD Sokol, R. Comerford, Antitrust and Regulating Big Data, cit., p. 1140 ff. With regard to the intersection between possession of big data and consumer protection from unfair commercial practices, the Italian Antitrust Authority, with a decision of 29 November 2018, stated that Facebook, on the one hand, in violation of artt. 21-22 of the Italian Consumer Code, had misleadingly induced users-consumers to register on the platform, not informing them adequately and immediately during the activation of their account of the activity of collection with commercial intent of the data provided by them, and more generally of the remunerative purposes that underlie the provision of the social network service, emphasizing the only gratuity. On the other hand, the Authority considered that the platform, in violation of artt. 24-25 of the Consumer Code, implemented an aggressive practice consisting of an undue influence on registered consumers, who underwent without express and prior consent the transmission of their data from Facebook to third party websites or apps and vice versa for commercial purposes (see: <http://www.agcm.it/media/comunicati-stampa/2018/12/Usodei-dati-degli-utenti-a-fini-commerciali-sissioni-per-10-milioni-di-EUR-to-Facebook>). Subsequently, the administrative court of appeal TAR Lazio, with the decision no. 261 of 10 January 2020, confirmed the aforementioned provision for the first part relating to misleading commercial practice, while the court amended the second part relating to aggressive practice.

⁷² See: T. Körber, Is Knowledge (Market) Power? - On the Relationship Between Data Protection, 'Data Power' and Competition Law, cit., p. 5 ff.; DS Tucker, H. Wellford, Big Mistakes Regarding Big Data, in Antitrust Source, 2014, available at: <https://ssrn.com/abstract=2549044>, p. 1 ff.

collection and use of data; on the other, those who consider antitrust as an inappropriate instrument and propose the adoption of a regulation based on the rules regarding data protection or consumer protection⁷³.

In relation to the above, it should also be noted that in the decisions of the European Commission⁷⁴ and some of the competition authorities operating at national level⁷⁵, no particular criteria have so far been established that can be applied to evaluate big data⁷⁶.

However, some scholars have noted how in the data economy a merger in related markets can also determine effects at both vertical and conglomerate level, if it contributes to increase or incentivize the ability of a large company to limit access to data for competitors operating upstream or downstream⁷⁷. In such contexts, competition problems would seem more likely, as it is more difficult for competitors to be able to replicate the information extracted from the data.

In this perspective, the post-merger combination of the parties' datasets could affect the market power of the entity resulting from the merger and/or the obstacles associated with the entry or expansion on the market for current or potential competitors⁷⁸.

From the Communication for a European Data Economy of January 2017⁷⁹ to the most recent Communication on a European Data Strategy of February 2020⁸⁰, the European Commission has addressed a number of data-related issues, including in particular that of the availability of data and the concentration of large quantities of them by a limited number of "big techs" and the related risk of reducing incentives for data-driven companies to emerge, grow and innovate⁸¹.

Consequently, the Commission has foreshadowed, in general, the creation of a common European data space⁸², and in particular, the adoption of regulatory measures including the introduction of

⁷³ See L. Holková Lubyová, *Big Data in the EU Competition Law*, Charles University in Prague Faculty of Law Research Paper No. 2018/I/1, February 2018, available at: <https://ssrn.com/abstract=3128400>, p. 1 ff.

⁷⁴ See, for example, the following cases: *Google/DoubleClick*, COMP/M.4731, decision 11/3/2008; *Microsoft/Yahoo! Search Business*, COMP/M.5727, decision 2/18/2010; *Facebook/WhatsApp*, COMP/M.7217, decision 3/10/2014.

⁷⁵ See: German Bundeskartellamt and French Autorité de la concurrence, joint report on Competition Law and Data, 10 May 2016, available at: <https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Big%20Data%20Papier.html>.

⁷⁶ In this regard, see among others: L. Holková Lubyová, *Big Data in the EU Competition Law*, cit., p. 4 ff.

⁷⁷ See B. Lasserre, A. Mundt, *Competition Law and Big Data: the enforcer's view*, in *Italian Antitrust Review*, 2017, no. 1, available at: <http://iar.agcm.it/article/view/12607>, p. 88 ff. (92).

⁷⁸ In this regard, see: G. Pitruzzella, *Big data and antitrust enforcement*, cit. p. 81.

⁷⁹ See: European Commission, Communication "Building a European Data Economy", COM (2017) 9, cit.

⁸⁰ See: European Commission, Communication "A European Strategy for Data", COM (2020) 66, cit.

⁸¹ In this sense, see: European Commission, Communication "A European Strategy for Data", COM (2020) 66, cit., p. 3, where, from a comparative perspective, it is also noted that "competitors such as China and the US are already innovating quickly and projecting their concepts of data access and use across the globe. In the US, the organization of the data space is left to the private sector, with considerable concentration effects. China has a combination of government surveillance with a strong control of Big Tech companies over massive amounts of data without sufficient safeguards for individuals". Therefore, the Commission believes that: "In order to release Europe's potential we have to find our European way, balancing the flow and wide use of data, while preserving high privacy, security, safety and ethical standards".

⁸² See in particular: European Commission, Communication "A European Strategy for Data", COM (2020) 66, cit., pp. 4-6 and 21-22, where the project of a European common data space is declined in support for the creation of nine sectoral common spaces: industrial-manufacturing data, Green Deal data, mobility data, health data, financial data,

specific non-personal data sharing obligations for companies that hold a dominant position⁸³.

Following the recent initiatives of the European Union, and the analyses underway on the matter in several Member States⁸⁴, there is an ongoing debate, as mentioned, about the possibility of using antitrust law as a tool aimed at imposing dominant companies to share their datasets.

In particular, regulators and scholars wonder, on the one hand, whether in order to obtain better products and services the knowledge derived from big data can give rise to a competitive advantage and at the same time be considered as a barrier to entry; on the other, if the data can be considered as essential inputs in some markets and therefore if the essential facility doctrine can also be applied in relation to them⁸⁵.

With regard to these issues, in the face of those who said that barriers to accessing big data may exist⁸⁶, other authors noted that the markets for the generation and collection of digital data are not characterized by the presence of barriers to access, nor does it appear configurable the existence of the requirements of the essential facility doctrine with regard to the refusal to provide data⁸⁷.

The refusal to share data, in fact, in order to be correctly framed within the scope of art. 102 of the TFEU, requires the verification of a set of circumstances of which the difficult configurability in relation to big data has been highlighted⁸⁸.

In particular, it should be ascertain whether the refusal to contract implies a strategy of monopolization of the market and to verify the existence of a series of requirements that have been recalled in particular in the Magill and the Microsoft cases⁸⁹.

The refusal to contract within the framework of the essential facility doctrine refers, first of all, to a product or service that is indispensable for the exercise of a specific activity in a connected secondary market. Secondly, the refusal to contract should rule out effective competition in the related market, as well as prevent the emergence of a new product or service for which there is a demand from

energy data, agriculture data, data for public administration and skills data.

⁸³ In this regard: J. Mordall, *Antitrust risks and big data*, 2017, available at: <https://ssrn.com/abstract=3059598>, p. 9, pointed out that in this way it would go beyond the remedies hitherto recognized in the antitrust context, and imposing such a wide access obligation could slow down innovation and reduce investments in a critical period in the evolution of the data economy.

⁸⁴ See in particular the joint report of the German and French competition authorities on *Competition Law and Data*, May 2016, cit., p. 3 ff., and the *Studie zur "Modernisierung der Missbrauchsaufsicht für marktmächtige Unternehmen"* - Projekt im Auftrag des Bundesministeriums für Wirtschaft und Energie, September 2018, cit.; see also: B. Lasserre, A. Mundt, *Competition law and Big Data: The Enforcers' View*, cit., p. 88 ff.

⁸⁵ See among others mentioned above: G. Colangelo, M. Maggiolino, *Big Data as a Misleading Facility*, cit., p. 1 ff.; J. Drexler, *Designing Competitive Markets for Industrial Data - Between Propertization and Access*, cit., p. 41 ff.; G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 77 ff.

⁸⁶ In this regard, see: DL Rubinfeld, MS Gal, *Access Barriers to Big Data*, cit., p. 339 ff.

⁸⁷ Thus: J. Drexler, *Designing Competitive Markets for Industrial Data - Between Propertisation and Access*, cit., p. 42 ff.

⁸⁸ See: T. Schrepel, *Predatory Innovation: The Definite Need for Legal Recognition*, in *SMU Science & Technology Law Review*, 2018, vol. 21, no. 1, p. 55 ff.; J. Drexler, RM Hilty, L. Desautettes, F. Greiner, D. Kim, H. Richter, G. Surblytė, K. Wiedemann, *Data Ownership and Access to Data*, cit., p. 9 f.

⁸⁹ *Microsoft v. Commission*, T-201/04, ECLI: EU: T: 2007: 289, [2007] ECR II-3601; *ITV c. Commission ('Magill')*, C-241/91 P and C-242/91 P, ECLI: EU: C: 1995: 98, [1995] ECR I-74.

consumers. Finally, the refusal to contract should not be objectively justified⁹⁰.

In relation to the aforementioned circumstances, the problem of the substitutability of data sets also emerges. The fact that the data is unrivaled and so can be part of different sets would lean against the hypothesis of dominance⁹¹. As noted by another doctrine, however, exclusivity would imply neither essentiality nor monopolistic power on a secondary market⁹².

The assessment of dominance in the context of big data using the concepts of substitutability and essentiality for access to connected markets, therefore, appears somewhat complex. Having large amounts of data is not a problem in itself and is unlikely to be an obstacle when other companies are able to obtain the same or similar data, by collecting them from their users or by purchasing them from other operators⁹³.

On the other hand, the legal notion of essentiality goes beyond simply recognizing the relevance that big data can have in the competitive process. Even in those circumstances in which big data can constitute a significant source of advantage by determining a barrier to entry, antitrust law does not necessarily require companies to provide the data collected to their competitors.

In relation to such circumstances, it was found that the imposition of a supply obligation would constitute a strong disincentive to invest in those activities through which big data are collected and analyzed, which could bring benefits to consumers in the forms of innovative services.⁹⁴

From a different point of view, with regard to mergers, it is necessary to evaluate the role of big data in relation to market power and the potential damages related to the combination of large datasets⁹⁵. Analyzing the impact of mergers on competition in markets could also involve data protection. In this sense, it has been observed that if consumers consider the protection of privacy as a desirable characteristic of a service, a reduction of the same will be equivalent to a reduction in the quality of the service provided.

Antitrust and data protection laws could therefore find a point of convergence where the reduction of privacy is qualified as a reduction of the quality of the goods and services offered. In this perspective, an antitrust intervention could aim at sanctioning any strategies likely to give rise to this

⁹⁰ On essential facility and big data, see among others: J. Drexler, *Designing Competitive Markets for Industrial Data - Between Propertisation and Access*, cit., p. 47 ff.; G. Colangelo, M. Maggiolino, *Big Data as a Misleading Facility*, cit., p. 1 ff.

⁹¹ So, again: J. Drexler, *Designing Competitive Markets for Industrial Data - Between Propertisation and Access*, cit., p. 46.

⁹² In this sense, see: G. Colangelo, M. Maggiolino, *Big Data as a Misleading Facility*, cit., p. 7.

⁹³ See: G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 79 f.; T. Körber, *Is Knowledge (Market) Power? - On the Relationship Between Data Protection, 'Data Power' and Competition Law*, cit., p. 5 ff.

⁹⁴ See again: J. Drexler, *Designing Competitive Markets for Industrial Data - Between Propertisation and Access*, cit., p. 61 f.; G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 80.

⁹⁵ See: J. Modrall, N. Rose, *Big Data and Merger Control in the EU*, in *Journal of European Competition Law & Practice*, 2018, vol. 9, no. 9, p. 569 ff.; B. Holles de Peyer, *EU Merger Control and Big Data*, in *Journal of Competition Law & Economics*, 2017, vol. 13, no. 4, p. 767 ff.; G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 81, according to whom the control carried out by the competition authorities on the mergers in which big data appear as the central element, constitutes the context in which, in the near future, the same authorities could have a greater influence on the evolution of the digital markets.

reduction⁹⁶.

Moreover, concerns raised about the risks of exclusion and abuse relating to big data can be highlighted from a further point of view. The high degree of transparency that characterizes online markets as regards prices and the widespread use of algorithms for determining them can have an impact on the collusive behavior of businesses.

While the ability of both consumers and businesses to compare prices online has increased, this information can be used by companies to identify the best positioning of their offer on the market and possibly to facilitate the achievement, monitoring and compliance with collusive agreements⁹⁷.

With reference to big data, then, the hypothesis that reproduces the oligopolistic interdependence, that is, the hypothesis for which each operator arrives to practice a collusive price although it developed its own algorithm autonomously and independently, is also of concern⁹⁸.

In this framework, then, the impact that price discrimination could have on consumer welfare also depends on various factors, including, in particular, the degree of competition in the market⁹⁹.

Recently, with regard to the issues concerning the relation between antitrust and data, an important contribution came from the report on "Competition policy for the digital era" published by the

⁹⁶ For example, when there are multiple opportunities to collect and analyze relevant user data that can be used as inputs to provide certain services, big data are less likely to constitute a barrier to entry and an index of market power. Similarly, while market efficiency could increase when companies are able to recommend products or services in line with individual consumers' preferences, social segregation and polarization may worsen when people are exposed only to certain opinions and news. In this regard, see: G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 79; CR Sunstein, *Divided Democracy in the Age of Social Media*, Princeton University Press, Princeton, 2017, and Id., *The law of group polarization*, in *Journal of Political Philosophy*, 2002, vol. 10, no. 2, p. 175 ff.

⁹⁷ A key question in the aforementioned hypotheses, therefore, concerns the possibility of extending the traditional notion of responsibility to the development and use of price determination algorithms. In this sense, see: OECD, *Algorithms and Collusion: Competition Policy in the Digital Age*, 2017, available at: <http://www.oecd.org/daf/competition/Algorithms-and-collusion-competition-policy-in-the-digital-age.pdf>, p. 18 ff.; German Bundeskartellamt and French Autorité de la concurrence, *joint study on Algorithms and Competition*, 6 November 2019, available at: https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Berichte/Algorithms_and_Competition_Working-Paper.html?nn=3591568, p. 4 ff.; see also: JE Gata, *Controlling Algorithmic Collusion: Short Review of the Literature, Undecidability, and Alternative Approaches*, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3334889; K. Lee, *Algorithmic Collusion & Its Implications for Competition Law and Policy*, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3213296; G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 83 f.

⁹⁸ On this point, which is beyond the scope of this paper, see.: K. Hansen et al., *Algorithmic Collusion: Supra-Competitive Prices via Independent Algorithms*, CEPR Discussion Paper No. DP14372, 2020, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3535457, p. 1 ff.; E. Calvano et al., *Artificial Intelligence, Algorithmic Pricing and Collusion*, 2019, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3304991, p. 1 ff.; T. Klein, *Assessing Autonomous Algorithmic Collusion: Q-Learning Under Short-Run Price Commitments*, Amsterdam Law School Research Paper No. 2018-15, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3195812, p. 1 ff.; U. Schwalbe, *Algorithms, Machine Learning, and Collusion*, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3232631, p. 1 ff.; on the related issue of consumers making their purchase decisions via algorithms: M. Gal, N. Elkin Koren, *Algorithmic Consumers*, in *Harvard Journal of Law and Technology*, 2017, vol. 30, no. 2, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2876201, p. 1 ff.

⁹⁹ In this regard, see again: G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 80, who notes that it is not obvious that discrimination by oligopolistic companies has an impact similar to that put in place by a monopolist; as well as: PG Picht, G. Loderer, *Framing Algorithms - Competition Law and (Other) Regulatory Tools*, Max Planck Institute for Innovation & Competition Research Paper No. 18-24, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3275198, p. 1 ff.

European Commission¹⁰⁰.

The Report, in particular, given that the importance of data and access to it for competition always depends on an analysis of the peculiarities of a given market, the type of data and their use in a specific case¹⁰¹, analyses specifically the profiles relating to access to personal data, access to data pursuant to art. 102 TFEU, and the data sharing or data pooling agreements, with particular attention to the opening of the related secondary markets (so-called aftermarket).

With regard to access to personal data, it is noted that the GDPR can facilitate the transition between data-driven services through data portability¹⁰². However, this will also depend on the ways in which the right to data portability will be interpreted and implemented¹⁰³.

Since data portability in the GDPR has been outlined as a right to receive a copy of some accumulated past data, it can facilitate the transfer of data from one service to another, while it has not been drafted to facilitate the multi-homing¹⁰⁴ or offering complementary services that often rely on continuous and potentially real-time access to data.

More demanding data access regimes, including interoperability, could be imposed through sector regulation, especially to open secondary markets for complementary services¹⁰⁵, or pursuant to art. 102 TFEU regarding dominant companies¹⁰⁶.

With respect to access to data ex art. 102 TFEU, an in-depth analysis will be necessary to verify whether such access is actually indispensable, distinguishing between different forms of data, access levels and uses of the same, and taking into consideration the legitimate interests of both parties.

In cases where it is necessary to impose obligations to access data and possibly interoperability, for example to the service of complementary or after-sales markets, the competition authorities or the courts will have to specify the conditions of access.

This can happen where access requests are relatively standard and access conditions

¹⁰⁰ European Commission, Competition policy for the digital era, April 2019, cit.

¹⁰¹ With regard to which see above, at paragraph I.

¹⁰² Art. 20 of the 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), OJ L 119, 4.5.2016, entered into force on 25 May 2018.

¹⁰³ In particular, from the perspective of the risk-based approach adopted in the GDPR, it is assumed that a more stringent data portability regime can be imposed on a dominant company to overcome particularly pronounced lock-in effects.

¹⁰⁴ Network configuration that gives rise to the possibility for the consumer-user to use multiple platforms through the interconnection between them; regarding the effects of multi-homing, see among others: SP Anderson, Ø. Foros, HJ Kind, The Importance of Consumer Multi-Homing (Joint Purchases) for Market Performance: Mergers and Entry in Media Markets, in *Journal of Economics & Management Strategy*, 2019, vol. 28, no. 1, p. 125 ff.; JC Rochet, J. Tirole, Platform Competition in Two-Sided Markets, in *Journal of the European Economic Association*, 2003, vol. 1, no. 4, p. 990 ff.

¹⁰⁵ As happened with the Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC, OJ L 337 23.12.2015.

¹⁰⁶ Thus: European Commission, Competition policy for the digital era - A report by Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer, cit., p. 77 ff.

substantially stable. Conversely, where a dominant company should be required to grant continuous access to data, for example to ensure interoperability, regulation may be required, which will sometimes have to be sectoral¹⁰⁷.

Agreements for sharing or pooling data can often be pro-competitive: they can allow companies to develop new or better products or services or to train algorithms on a broader and more meaningful basis¹⁰⁸.

On the other hand, sometimes these agreements can become anti-competitive, for example in the case in which competitors are denied or granted access to less favorable conditions, or if the sharing of data gives rise to an exchange of anti-competitive information, etc. Therefore, an assessment of the scope of the different types of data sharing and their pro-competitive or anti-competitive effects will be required¹⁰⁹.

In any case, it is worth remembering that antitrust law is an important component of the broad set of policy instruments that can be used for public intervention with respect to the regulation of digital markets. The various regulatory tools used for this purpose include, among others, the rules on data protection, freedom of expression, media pluralism, intellectual property and consumer protection. Such instruments, as shown in the European Union's approach, for example in the package of measures adopted by the Commission in 2018 on access to data¹¹⁰, must be used in a complementary way in order to simultaneously guarantee the pursuit of a series of common objectives, which, in addition to the antitrust goals of consumer welfare and protection of competition and innovation¹¹¹, include the protection of the fundamental rights mentioned above¹¹².

¹⁰⁷ See again: European Commission, *Competition policy for the digital era - A report by Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer*, cit., p. 98 ff.

¹⁰⁸ Regarding co-competition and data sharing or pooling, see: X. Zhang et al., *Compete, Cooperate, or Coopete? The Strategic Role of Data Analytics in Targeted Advertising*, 2020, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3549642, p. 1 ff.; Y. Gu, L. Madio, C. Reggiani, *Data Brokers Co-competition*, 2019, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3308384, p. 1 ff.; G. Ghidini, A. Stazi, "Co-competition: the role of IPRs, in D. Beldiman (ed.), *Innovation, Competition and Collaboration*, Edward Elgar, Cheltenham, 2015, p. 15 ff.

¹⁰⁹ See, also for the indication of different intervention options: European Commission, *Competition policy for the digital era - A report by Jacques Crémer, Yves-Alexandre de Montjoye, Heike Schweitzer*, cit., p. 92 ff.

¹¹⁰ See the Communication "Towards a common European data space", COM (2018) 232, cit., as well as other contextual measures including the Guidance on sharing private sector data in the European data economy, SWD (2018) 125 final, cit., inspired by the balance of the different fundamental rights and interests at stake.

¹¹¹ On the debate on antitrust purposes, see recently: AL Nielson, *The Paradox of Discretionary Competition Law*, in *CoRe - European Competition and Regulatory Law Review*, 2018, vol. 2, no. 3, p. 156 ff.; A. Douglas Melamed, N. Petit, *The Misguided Assault on the Consumer Welfare Standard in the Age of Platform Markets*, in *Review of Industrial Organization*, 2019, vol. 54, no. 4, p. 741 ff.; GJ Werden, *Back to School: What the Chicago School and New Brandeis School Get Right*, 2018, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3247116, p. 1 ff.; L. Khan, *The New Brandeis Movement: America's Antimonopoly Debate*, in *Journal of European Competition Law & Practice*, 2018, vol. 9, no. 3, p. 131 ff.; G. Ghidini, *Rethinking Intellectual Property. Balancing Conflicts of Interests in the Constitutional Paradigm*, cit., p. 331 ff.

¹¹² In this regard, see: G. Pitruzzella, *Big Data and antitrust enforcement*, cit., p. 84 f.; A. Daly, A. Carlson, T. Van Geelen, *Data and fundamental rights*, in V. Mak, E. Tjong Tjin Tai, A. Berlee (eds.), *Research Handbook on Data Science and Law*, Edward Elgar, Cheltenham, 2018, p. 378 ff.; A. Savin, *Regulating Internet Platforms in the EU - The Emergence of the 'Level Playing Field'*, in *Computer Law and Security Review*, 2018, vol. 34, no. 6, p. 1215 ff. G. De Gregorio, *Freedom of Expression and ISP Liability in the Digital Single Market*, in *CoRe - European Competition and Regulatory Law Review*, 2018, vol. 2, no. 3, p. 203 ff.

IV. CONCLUSION

Despite the issues mentioned so far, the generalized acquisition of large amounts of data often appears to be a necessary strategy to maintain the competitiveness of companies and at the same time introduce innovative products. With a view to consumer welfare, it was found that if companies had not been able to acquire large quantities of data, there would have been an impediment in the process of technological evolution.

For example, Tesla's self-driving technology, IBM Watson's ability to diagnose medical diseases, and the Weather Company's weather forecast would have been impossible without large amounts of data. Data is also the resource through which Waze calculates the best route to facilitate car drivers or Facebook connects people with lost friends. These examples represent only some of the advantages that user-consumers now consider acquired in everyday life¹¹³.

Sometimes competition in the markets is limited by the difficulties encountered by users in changing providers or in using a different service. In some cases there may even be a corporate strategy aimed at preventing users from transferring their data to a competitor so as not to lose customers¹¹⁴.

It is not by chance, therefore, that among the most relevant provisions introduced by the GDPR there is that relating to the right to data portability¹¹⁵. This right is aimed specifically at obtaining our personal data in a structured, commonly used and readable form from any electronic device, and to request its transfer, free of charge and without hindrance, to another service provider.

The right to portability, therefore, gives its owner the possibility not only to access her personal data, but also to transfer them for further, and potentially different, purposes than those for which they were initially collected, by a service provider to another. The introduction of this principle has a significant scope, as it traces a clear way for the resolution of the problems connected to the passage of data between different service providers, forcing the latter to renounce the technology lock-in¹¹⁶.

¹¹³ In this regard, see: J. Kennedy, *The Myth of Data Monopoly: Why Antitrust Concerns About Data Are Overblown*, cit., p. 25.

¹¹⁴ See: WA Günther et al., *Debating big data: A literature review on realizing value from big data*, in *Journal of Strategic Information Systems*, 2017, vol. 26, no. 3, p. 191 ff. (200 ff.).

¹¹⁵ This is also the vision of the European Commission, which in the impact assessment of the GDPR underlined that data portability is "a key factor for effective competition". See: Commission Staff Working Paper - Impact Assessment accompanying the General Data Protection Regulation and the Directive on the protection of individuals with regard to the processing of personal data by competent authorities for the purposes of prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and the free movement of such data ("Impact Assessment report"), SEC (2012) 72 final, p. 28. As regards the implementation of this right, then, in the Communication "A European Strategy for Data", COM (2020) 66, cit., p. 20, the Commission noted the importance of strengthening the right to data portability pursuant to art. 20 of the GDPR, offering people greater control over who can access and use the data generated by the machines, for example through stricter requirements on the interfaces for accessing data in real time and obligations of mechanically readable formats for the data of certain products and services, such as those from smart appliances or wearable devices.

¹¹⁶ In this perspective, in July 2018 Facebook, Google, Microsoft and Twitter - later joined by Apple and other companies - launched the "Data Transfer Project", an open source initiative dedicated to the development of tools that will allow user-consumers to transfer their data directly from one service to another, without the need to download them and then proceed with a new upload. Moreover, data portability can also provide benefits for user security, by allowing them to back up or store important information, organize information across multiple accounts, recover data from account violation or from outdated services.

From an economic point of view, unlike what is sometimes stated in the debate on the subject¹¹⁷, data is not a scarce resource. Conversely, over time the amount of data in circulation increases exponentially. In addition, data is not consumed. On the contrary, users can transfer it to different service providers. Finally, data is an unrivaled asset in consumption, as it can also be used by multiple subjects simultaneously¹¹⁸.

Therefore, while if there is no data even a minimum quantity is useful, as the quantity of data increases their usefulness begins to decrease: it is the so-called “tragedy of big data”, where more data will involve spurious or even insignificant correlations and significantly higher costs for identifying significant correlations¹¹⁹.

While the value of the data in itself is small, they acquire value when they are organized in such a way as to obtain information and knowledge. This, of course, is also relevant from the point of view of the analysis of the value of the data from the point of view of competition¹²⁰.

If only raw data is taken into consideration, the value to which it can instead give rise if properly analysed is not found. The key to extracting value from data is having innovative ideas on how to take advantage from it and using or developing effective artificial intelligence software and systems to derive useful information, for example in the form of intuitions or trained models, as enablers for the development and use of services or products¹²¹.

In such a perspective, then, a possible competitive advantage of a company compared to competitors could be based, more than on the amount of data, on the programming and processing skills, on the rhythm of learning and on the ability to combine data analysis, machine learning and human learning in the best possible ways to develop innovative services or products¹²².

¹¹⁷ With claims that the data is “the new oil”. See eg: N. Newman, Search, Antitrust and the Economics of the Control of User Data, cit. p. 436; AV Lerner, The role of Big Data in online platform competition, cit., p. 3.

¹¹⁸ See A. Gandomi, M. Haider, Beyond the hype: Big data concepts, methods, and analytics, cit., pp. 137-144; Hal R. Varian, Beyond Big Data, cit., p. 28 ff.; J. Drexl, Designing Competitive Markets for Industrial Data - Between Perpetualisation and Access, cit. p. 28.

¹¹⁹ In this regard, see: NN Taleb, Antifragile: Things That Gain from Disorder, Random House, 2012.

¹²⁰ As noted above, especially at parr. I and III.2. See again: European Commission, Competition policy for the digital era, cit., p. 27 ff.; G. Pitruzzella, Big Data and Antitrust enforcement, cit., p. 80.

¹²¹ See, also for an appropriate framework in the context of the information economy: European Commission, Competition policy for the digital era, cit., pp. 27-29; JE Stiglitz, The contributions of the economics of information to twentieth century economics, in Quarterly Journal of Economics, 2000, vol. 115, no. 4, p. 1441 ff.; RL Ackoff, From Data to Wisdom, cit., p. 3 ff. To this end, machine learning and deep learning do not necessarily require a lot of data, and sometimes they even get better results with less data, as shown by the case of AlphaGo Zero, a game software for the ancient Chinese game Go. AlphaGo Zero is based on a machine learning model built by the company DeepMind without using data from human matches, which also eliminated the 300,000 games used to educate the original AlphaGo and became more effective by an order of magnitude (see: <https://deepmind.com/research/alphago>). In this scenario, therefore, the fundamental challenge appears to be the creation of a learning society, that is, the design of social learning through human learning and machine learning. How we do this will affect the labor market, social inequalities, climate change and other complex challenges of the present. In this regard, see: JE Stiglitz, BC Greenwald, Creating a Learning Society: A New Approach to Growth, Development, and Social Progress, Columbia University Press, New York, 2014.

¹²² All these learning processes, however, are domain-specific, as we still seem far from designing a system capable of learning, for example, to optimize automotive production and use this knowledge to understand how to produce more effective drugs. See: A. Thierer, AC O’Sullivan, R. Russell, Artificial Intelligence and Public Policy, Mercatus Center George Mason University, Arlington, 2017, available at:

The data revolution requires a regulation that, as recently stated by the European Commission, favors an ecosystem of public bodies, businesses, civil society and private individuals, creating new data-based products and services¹²³.

Public policies, highlighted the Commission, can increase such a data-driven supply and demand, both by increasing the capacity of the public sector to use data for decision making and public services, and by updating sectoral rules to reflect opportunities offered by data and ensure that there is no disincentive to its productive use¹²⁴.

Thus, data regulation has to face a twofold challenge: on the one hand, it must allow and protect the collection and circulation of data through clear and open mechanisms, also with regard to the international flow of data¹²⁵. At the same time, relevant fundamental rights must be safeguarded, such as the protection of personal data, consumers and competition¹²⁶.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3021135, p. 1 ff.; C. Eldred, J. Zysman, M. Nitzberg, AI and Domain Knowledge: Implications of the Limits of Statistical Inference, BRIE/WITS Technology Briefing#2, October 2019, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3479479, p. 1 ff.; S. Sneha, R. Beschi, A Conceptual Overview and Systematic Review on Artificial Intelligence and Its Approaches, in *International Journal of Emerging Technology and Innovative Engineering*, 2019, vol. 5, no. 12, p. 821 ff.

¹²³ See: European Commission, Communication "A European Strategy for Data", COM (2020) 66, cit., p. 5.

¹²⁴ In this perspective, it is also worth mentioning the debate on big data as an instrument or threat for equality. In the face of increasing unease about the asymmetry of power and economic inequality between big data collectors and users pointed out by some scholars, others consider big data a possible means through which equality can be promoted in a new and more effective way, thanks to their unique ability to distinguish different situations and people. In this sense, the main challenge for legislators and regulators would be to facilitate the distinctions between agents located in different positions and at the same time limit illegitimate discrimination. Thus, the data would make it possible to use personalized legal rules and could also guarantee in the future a mitigation of economic inequalities. See: P. Hacker, B. Petkova, Reining in the Big Promise of Big Data: Transparency, Inequality, and New Regulatory Frontiers, in *Northwestern Journal of Technology and Intellectual Property*, 2017, vol. 15, no. 1, p. 1 ff. (13 ff.).

¹²⁵ In this regard, see: F. Casalini, J. López González, Trade and Cross-Border Data Flows, OECD Trade Policy Papers No. 220, OECD Publishing, Paris 2019, available at: https://www.oecd-ilibrary.org/trade/trade-and-cross-border-data-flows_b2023a47-en; V. Zeno-Zencovich, Free flow of data. Is international law the appropriate answer?, forthcoming in: F. Fabbrini, E. Celeste, J. Quinn (eds.), *Data Protection Imperialism and Digital Sovereignty*, Hart Publishing, Oxford, 2020; D. Ciuriak, M. Ptashkina, Towards a Robust Architecture for the Regulation of Data and Digital Trade, cit., p. 8 ff.

¹²⁶ See: European Commission, Communication "A European Strategy for Data", COM (2020) 66, cit., p. 4 ff.; and in the same perspective, on the interaction between data and artificial intelligence: European Commission, White Paper on Artificial Intelligence - A European approach to excellence and trust, Brussels 19.2.2020 COM(2020) 65 final, available at: https://ec.europa.eu/info/files/white-paper-artificial-intelligence-european-approach-excellence-and-trust_en, p. 10 ff.

