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Can Law Ever Be Code?

Beyond Google's Algorithmic Black Box and Towards a Right to Explanation

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The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.

Mark Weiser (1999)

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Abbreviations

AI	Artificial Intelligence
AI Act	Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts
API	Application Programming Interface
ARPANET	Advanced Research Projects Agency Network
B2B	Business to Business Relations
B2C	Business to Consumer Reations
CJEU	Court of Justice of the European Union
CRD	Consumer Rights Directive
Convention 108	Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, of the Council of Europe
Convention 108+	Consolidated Text of the Modernised Convention for the Protection of Individuals with Regard to the Processing of Personal Data
DMA	Digital Markets Act (Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector)
DNS	Domain Name System
DPA	Data Protection Authority
DPIA	Data Protection Impact Assessment
DSA	Digital Services Act (Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services)
ECHR	European Court of Human Rights
EDPB	European Data Protection Board
EEA	European Economic Area
EU	European Union
FTC	Federal Trade Commission
GAFA	Google, Amazon, Facebook and Apple

GDPR	General Data Protection Regulation, of the European Union
IoT	Internet of Things
IP	Internet Protocol
NSA	National Security Agency
OECD	Organization for Economic and Co-operation Development
OTT	Over-the-Top applications
R&D	Research and Development
RTB	Real Time Bidding
SEO	Search Engine Optimization
SERP	Search Engine Results Page
TFEU	Treaty on the Functioning of the European Union
UCPD	Unfair Commercial Practices Directive
VC	Venture Capital
VPN	Virtual Private Networks

Introduction

Google currently has one of the most resilient and ubiquitous search engines worldwide, with a world market share of 86% in April 2020.[1] Furthermore, its technology is used as a base-layer platform for several applications, both from Google (Gmail, Chrome, YouTube, Android, Analytics) and from secondary application providers. Such a dominant market share, in an ever-growing digital economy and in parallel with the social construct that its search engine might be "neutral",[2] may raise concerns with regard to the ways in which users access information, how they search, the results they obtain, the search engine's transparency and the accountability of the automated decision-making behind this platform.[3]

It is worth remembering that "consumers look to Google because they need information; no consumers have the resources to assess the quality of that information."[4] Google is a company with undeniable global reach and universally aimed technologies; however, it faces local jurisdictional and cultural particularities.[5] This also represents a

[1] Interestingly, this statistic includes China, in which Google has no operations currently. "Worldwide Desktop Market Share of Leading Search Engines from January 2010 to April 2020," Statista, accessed August 1, 2020, https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/.

[2] There is vast sociological material on this matter. Even the use of "google" as a verb denotes that. It was considered the "most useful word of 2002." It was added to the *Oxford English Dictionary* on June 15, 2006, and to the eleventh edition of the *Merriam-Webster Collegiate Dictionary* in July 2006.

[3] The Article 29 Data Protection Working Party defines automated decision-making as "the ability to make decisions by technological means without human involvement." Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679" (WP251rev.01, 3 October 2017), at 8, https://ec.europa.eu/newsroom/article29/item-detail.cfm?item_id=612053. Jonathan Zittrain contends that: "An important cluster of work to be done here is to ensure that important ideas can reach people who want to absorb them. It is not enough for the *New York Times* to publish world-class news. It must take active steps to reach those whose governments or peers prefer they not see it. Well over half a billion people have their internet activities routinely and automatically channeled away from unapproved sites and topics." Jonathan Zittrain, "The Internet and Press Freedom," *Harvard Civil Rights-Civil Liberties Law Review* 45 (2010): 568. See also: Moritz Büchi et al., "The Chilling Effects of Algorithmic Profiling: Mapping the Issues," *Computer Law & Security Review* 36 (April 2020): 2, https://doi.org/10.1016/j.clsr.2019.105367.

[4] Jay Matthew Strader, "Google, Monopolization, Refusing to Deal and the Duty to Promote Economic Activity," *IIC - International Review of Intellectual Property and Competition Law* 50, nº 5 (June 2019): 561, https://doi.org/10.1007/s40319-019-00818-9.

[5] As an example, what might be considered hate speech under German law, thus subjected to removal, may not be deemed so in the United States, where freedom of expression impedes some forms of censorship. See: Kristin E. Poling, "Protecting Freedom of Expression In Times of Terrorism: A Comparison of United States, Germany, and South Korea," *Law School Student Scholarship* (2014): 29.

challenge for regulators and internet governance bodies, which are subject to their jurisdictional limitations and capabilities.[6]

The assumption of technological neutrality[7] and of technological determinism,[8] along with the criticism thereof, are themes that have underlain specialist literature for decades, and were rapidly adapted into the new age of business models based on computer applications since the commercial reach of the internet in the early 1990s.[9] This is still a bone of contention, even though Google's search engine has already been subjected to some forms of regulation[10] and some of the threats regarding bias in its algorithms have already been

[6] By "regulators and internet governance bodies," I mean a wide range of state and non-state actors who exert, in some capacity, decision-making influence and scrutiny over the internet and its applications. Thus, a broad conception of the term "regulator" may vary from legislators, courts, executive, and administrative authorities to civil society organizations with enough leveraging power over the markets. See also: Fabrício Bertini Pasquot Polido, *Direito internacional privado nas fronteiras do trabalho e tecnologias: Ensaios e narrativas na era digital* (Rio de Janeiro: Lumen Juris, 2018), 40.

[7] The assumption that technology is neither good or bad, but instead what its users make of it.

[8] Technological determinism is a theory that assumes that a society's technology determines the development of its social structure and cultural values. Christopher S. Yoo, "Technological Determinism and Its Discontents," *Harvard Law Review* 127, nº 3 (2014): 914–49. See also: Fernando de la Cruz Paragas and Trisha TC Lin, "Organizing and Reframing Technological Determinism," *New Media & Society* 18, no. 8 (September 2016): 1528-1546, https://doi.org/10.1177/1461444814562156; Carys J. Craig, "Technological Neutrality: Recalibrating Copyright in the Information Age," *Theoretical Inquiries in Law* 17, no. 2 (2016): 601-632, https://digitalcommons.osgoode.yorku.ca/cgi/viewcontent.cgi?referer=&httpsredir=1&article=3556&context=scholarly_works; Allan Dafoe, "On Technological Determinism: A Typology, Scope Conditions, and a Mechanism," *Science, Technology, & Human Values* 40, no. 6 (November 2015): 1047-1076, http://www.jstor.org/stable/43671266; Víctor Pavón Villamayor, "La convergencia y el principio de la neutralidad tecnológica," *El Trimestre Económico* 74 (4), no. 296 (Octubre-Diciembre 2007): 845-883, https://www.jstor.org/stable/20857139; Paul E. Ceruzzi, "Moore's Law and Technological Determinism: Reflections on the History of Technology," *Technology and Culture* 46, no. 3 (July 2005): 584-93, http://www.jstor.org/stable/40060905.

[9] Yoo, 915.

[10] For the purposes of this thesis, I adopt the concept of regulation set forth by Julia Black, which takes a systemic approach to the subject that includes non-State actors in its analysis of what constitutes regulation: "Regulation is a process involving the sustained and focused attempt to alter the behavior of others according to defined standards or purposes with the intention of producing a broadly defined outcome or outcomes." Julia Black, "Decentring Regulation: Understanding the Role of Regulation and Self-Regulation in a 'Post-Regulatory' World," *Current Legal Problems* 54, nº 1 (February 2001): 142, https://doi.org/10.1093/clp/54.1.103. See also: John Schinasi, "Practicing Privacy Online: Examining Data Protection Regulations through Google's Global Expansion," *Columbia Journal of Transnational Law* 52, no. 2 (2014): 569-616, https://ssrn.com/abstract=2318593; "Google's Enemies," *The Economist*, June 30, 2011, Business, https://www.economist.com/business/2011/06/30/googles-enemies.

exposed,[11] such as the manipulation of Google Images results and search engine optimization (SEO).[12]

With regard to search engines, it is also possible to contend that human relations online are based on the behavioral patterns of access to specific knowledge and, as a result, are an intermediated liaison between the user and the information, influencing consumer choice, political opinions, competition between businesses, etc.[13] Other authors will also list additional risks related to the algorithmic selection of content, such as the minimization of business variety, the creation of echo chambers and filter bubbles, censorship, abuse of market power, surveillance, and loss of controllability of technology.[14] This leads to a sense of the legal and political implications of technology in collective intelligence, including of

[11] The European Commission recently fined the company over 4.3 billion euros for imposing illegal restrictions on Android device manufacturers and operations, which also demonstrates that this issue concerns hardware, not just software. See also: Raja Ridgway, "What Biases Are in My Internet Searches?" *Science Scope* 43, no. 3 (October 2019): 24-27, https://www.jstor.org/stable/26899080; Ben Wagner et al., "Bias in Geographic Information Systems: The Case of Google Maps," *Proceedings of the 54th Hawaii International Conference on System Sciences 2021* (2021): 837-846, https://scholarspace.manoa.hawaii.edu/bitstream/10125/70715/1/0083.pdf; Luca Russo and Selena Russo, "Search Engines, Cognitive Biases and the Man–Computer Interaction: A Theoretical Framework for Empirical Researches about Cognitive Biases in Online Search on Health-Related Topics," *Medicine, Health Care and Philosophy* 23, no. 2 (June 2020): 237–246, https://doi.org/10.1007/s11019-020-09940-9.

[12] "The objective of search engine optimization is manipulation of the final search engine results and the promotion of individual pages and services. While direct manipulations of search engines are not only difficult but illegal, search engine optimization and web spam services focus on the optimization of content and webpage structure before they are indexed by the search engines." Michael Hilberer and Hendrik Speck, "Development of Algorithms for Web Spam Detection Based on Structure and Link Analysis," *Proceedings of the International Association for Development of the Information Society International Conference e-Society 2005* (June 2005): 2, https://www.hilberer.com/hilberer-publications/eSociety-2005/e-Society2005-MHilberer.pdf.

[13] Joris van Hoboken, *Search Engine Freedom: On the Implications of the Right to Freedom of Expression for the Legal Governance of Web Search Engines*, Information Law Series, vol. 27 (Alphen aan den Rijn, The Netherlands: Kluwer Law International, 2012). See also: Robert Epstein and Ronald E. Robertson, "The Search Engine Manipulation Effect (SEME) and Its Possible Impact on the Outcomes of Elections," *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 33 (August 2015): E4512-4521, https://www.jstor.org/stable/26464936; Fabrizio Germano and Francesco Sobbrio, "Opinion Dynamics via Search Engines (and Other Algorithmic Gatekeepers)," *Journal of Public Economics* 187 (July 2020): 1-25, https://doi.org/10.1016/j.jpubeco.2020.104188; Helen S. Moat et al., "Searching Choices: Quantifying Decision-Making Processes Using Search Engine Data," *Topics in Cognitive Science* 8, no. 3 (July 2016): 685-696, https://doi.org/10.1111/tops.12207; Kinshuk Jerath, Liye Ma, and Young-Hoon Park, "Consumer Click Behavior at a Search Engine: The Role of Keyword Popularity," *Journal of Marketing Research* 51, no. 4 (August 2014): 480-486, https://www.jstor.org/stable/26661848; Ming Cheng and Chris K. Anderson, "Search Engine Consumer Journeys: Exploring and Segmenting Click-Through Behaviors," *Cornell Hospitality Quarterly* 62, no. 2 (May 2021): 198–214, https://doi.org/10.1177/1938965520924649.

[14] Florian Saurwein, Natascha Just, and Michael Latzer, "Governance of Algorithms: Options and Limitations," *Info* 17, nº 6 (October 2015): 37, https://doi.org/10.1108/info-05-2015-0025. See also: Natascha Just and Michael Latzer, "Governance by Algorithms: Reality Construction by Algorithmic Selection on the Internet," *Media, Culture & Society* 39, no. 2 (March 2017): 238-258, https://doi.org/10.1177/0163443716643157; Michael A. DeVito, "From Editors to Algorithms: A Values-Based Approach to Understanding Story Selection in the Facebook News Feed," *Digital Journalism* 5, no. 6 (2017): 753-773, https://doi.org/10.1080/21670811.2016.1178592; Lauren V. Bryant, "The YouTube Algorithm and the Alt-Right Filter Bubble," *Open Information Science* 4, no. 1 (2020): 85-90, https://doi.org/10.1515/opis-2020-0007; Mario Haim, Andreas Graefe, and Hans-Bernd Brosius, "Burst of the Filter Bubble?" *Digital Journalism* 6, no. 3 (2018): 330-343, https://doi.org/10.1080/21670811.2017.1338145.

those search engines, which can be critical to analyzing the internet's effect on cognition, fragmentation of relevant knowledge, and contextualization of facts.[15]

An initial bibliographical review of Lawrence Lessig's *Code: And Other Laws of Cyberspace*[16] and *Code: Version 2.0*[17] posits the idea of law being a "sideshow" (i.e., secondary) and of algorithmic code being a norm in a world of global digital markets.[18] Throughout this research, the idea of a right to explanation for search engines counters Lessig's argument, especially by means of examples in recent developments in the online regulation of the internet.[19] European agents, of states and otherwise, have recently demonstrated, through several of their administrative, legislative and soft-law institutions, that minimum legal standards can be set and that it is still possible to exercise some regulatory power over these internet tools by means of legal mechanisms and public commotion.[20]

While there are certain particularities in Lessig's body of work that need to be taken into account—such as the fact that most of his arguments surrounding his theory concerned copyright law, the government and the market's inability to enforce it—, the results obtained by the author can certainly be read through the lenses of today's regulatory proposals for the internet. Nowadays, even the fact that Google's search engine expressly refrains from displaying results that infringe copyright,[21] and given its robust market share, reveals that

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[15] Nicholas Carr, *The Shallows: What the Internet Is Doing to Our Brains* (New York: W. W. Norton & Company, 2010).
[16] Lawrence Lessig, *Code: And Other Laws of Cyberspace* (New York: Basic Books, 1999).
[17] Lawrence Lessig, *Code: Version 2.0* (New York: Basic Books, 2006).
[18] By "code," the author actually means computer code and 21st-century technology related to algorithms and the architecture of the internet.
[19] Samer Hassan and Primavera De Filippi, "The Expansion of Algorithmic Governance: From Code is Law to Law is Code," *Field Actions Science Reports*, Special Issue 17 (2017): 88-90, http://journals.openedition.org/factsreports/4518; Karen Yeung, "Regulation by Blockchain: The Emerging Battle for Supremacy between the Code of Law and Code as Law," *The Modern Law Review* 82, no. 2 (March 2019): 207-239, https://doi.org/10.1111/1468-2230.12399; Malte Ziewitz, "Special Issue Introduction. Governing Algorithms: Myth, Mess, and Methods," *Science, Technology, & Human Values* 41, no. 1 (January 2016): 3-16, http://www.jstor.org/stable/43671280; Håkan Hydén, "AI, Norms, Big Data, and the Law," *Asian Journal of Law and Society* 7, no. 3 (October 2020): 409-436, https://doi.org/10.1017/als.2020.36; David G. Post, "What Larry Doesn't Get: Code, Law, and Liberty in Cyberspace," *Stanford Law Review* 52, no. 5 (May 2000): 1439-1460, https://heinonline.org/HOL/LandingPage?handle=hein.journals/stflr52&div=53&id=&page=.
[20] "Non-State actors, such as international non-governmental organizations and transnational corporations, have begun to share regulatory and adjudicatory powers classically monopolized by the State as subject of international law and internal public law. And here, at this point, there seems to be a real change, particularly because it breaks with preconceived and normative categories whose universal or generalizing applicability remains committed" (my translation). Polido, *Direito internacional privado,* 83.
[21] Google, *How Google Fights Piracy*, 2018, https://storage.googleapis.com/gweb-uniblog-publish-prod/documents/How_Google_Fights_Piracy_2018.pdf.

some forms of control, from code to practice, may produce significant and real results in societal behavior.

Regulation of the internet as a whole, either *ex ante* or *ex post*,[22] due to its decentralized architecture[23] and consolidation over the years, may prove to be challenging in practice, even in countries like China, where virtual private networks (VPNs) are used in order to circumvent governmental censorship, for example.[24] The approaches proposed by this research, however, concern the regulation of one particular feature of the internet: the search engine.

Search engines may enjoy special importance in contemporary society as they are vehicles for accessing and disseminating information. They enable the information accessed through their results page to be ubiquitous,[25] and this facilitates the exercise of several fundamental rights, such as access to information and freedom of expression in particular.[26]

Additionally, the neutrality of the behavior of digital service providers is at the core of an ongoing stalemate between the European Union and the United States after the International Safe Harbor Privacy Principles[27] and the EU-US Privacy Shield were

[22] In many jurisdictions, legal and technological mechanisms have been put into place to establish more stringent liability rules, limit access to certain websites, prosecute users, take down webpages, screen data and remove allegedly offensive content. Such mechanisms can undermine civil liberties, freedom of expression and even market competition, which are all intrinsic to the foundation of the internet as we know it.

[23] Lessig, *Code: Version 2.0,* 45.

[24] Interestingly, in an effort to join China's promising market, Google has started developing Project Dragonfly, an initiative that allows for greater governmental surveillance, access to users' data and censorship (blocking terms such as "human rights"). Several of Google's employees signed an online petition protesting against the project and the refusal of the company to address their concerns regarding human rights violations. Adi Robertson, "Google Employees Push to Cancel Chinese Search Engine in New Letter," *The Verge*, November 27, 2018, https://bit.ly/2SmM96k. For more information on Google and China, see: Siva Vaidhyanathan, *The Googlization of Everything (And Why We Should Worry)* (Los Angeles: University of California Press, 2011), 117-121; Samuel Wade, "Google Employees Fear China Search Project Continues," *China Digital Times,* March 5, 2019, https://chinadigitaltimes.net/2019/03/google-employees-fear-china-search-project-continues/; Lihua Liu, Zhang Cheng, and Qian Jiahui, "Discourse Interaction in *The New York Times* and *China Daily*: The Case of Google's Departure," *Critical Arts* 32, issue 5-6 (November 15, 2018): 68–86, https://doi.org/10.1080/02560046.2018.1514416.

[25] "[I]t is undisputed that that activity of search engines plays a decisive role in the overall dissemination of those data in that it renders the latter accessible to any internet user making a search on the basis of the data subject's name, including to internet users who otherwise would not have found the web page on which those data are published." Case C-131/12, Google Spain v. Gonzalez, 2014 E.C.R. §§ 36.

[26] According to Article 11 of the EU Charter of Fundamental Rights: "Everyone has the right to freedom of expression. This right shall include freedom to hold opinions and to receive and impart information and ideas without interference by public authority and regardless of frontiers." Charter of Fundamental Rights of the European Union, 2012, O.J. 2012/C 326/02, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12012P/TXT&from=EN.

[27] The International Safe Harbor Privacy Principles or Safe Harbour Privacy Principles were principles developed between 1998 and 2000 in order to prevent private organizations within the European Union or United States which store customer data from accidentally disclosing or losing personal information. They were overturned on October 6, 2015 by the European Court of Justice (ECJ), which enabled some US companies to

considered to afford insufficient privacy standards for European users in terms of adequacy to the GDPR.[28] These frameworks were meant to be adopted voluntarily by US-based organizations importing personal data from the European Union, and that would give rise to legally binding obligations, with the intention of complying with adequacy requirements set by the GDPR.[29] Thus, it is worth remembering that data management,[30] data flow,[31] and data

comply with privacy laws protecting European Union and Swiss citizens. The seven principles from the Safe Harbor Principles were: Notice - Individuals must be informed that their data is being collected and how it will be used. The organization must provide information about how individuals can contact the organization with any inquiries or complaints; Choice - Individuals must have the option to opt out of the collection and forward transfer of the data to third parties; Onward Transfer - Transfers of data to third parties may only occur to other organizations that follow adequate data protection principles; Security - Reasonable efforts must be made to prevent loss of collected information; Data Integrity - Data must be relevant and reliable for the purpose it was collected; Access - Individuals must be able to access information held about them, and correct or delete it, if it is inaccurate; Enforcement - There must be effective means of enforcing these rules. "Safe Harbor Privacy Principles, issued by the U.S. Department of Commerce," July 21, 2000, https://build.export.gov/main/safeharbor/eu/eg_main_018475. They were overturned on October 6, 2015, by the Court of Justice of the European Union, which enabled some US companies to comply with privacy laws protecting European Union and Swiss citizens. Commission Decision of 26 July 2000 Pursuant to Directive 95/46/EC of the European Parliament and of the Council on the Adequacy of the Protection Provided by the Safe Harbour Privacy Principles and Related Frequently Asked Questions Issued by the US Department of Commerce, 2000 O.J (L 215), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32000D0520&from=EN.

[28] Case C-362/14, Maximillian Schrems v. Data Protection Commissioner, joined party: Digital Rights Ireland Ltd, THE COURT (Grand Chamber), CJEU 2014, Judgement (October 6, 2015); C-311/18, Data Protection Commissioner v. Facebook Ireland Ltd and Maximillian Schrems, CJEU 2018, Judgment (July 16, 2020). Also: The Court regarded that "the Privacy Shield — which replaced an earlier data transfer agreement called Safe Harbor — did not offer adequate protection for EU data when it was shipped overseas because U.S. surveillance law were too intrusive." Vincent Manancourt, "EU Court Ruling Strikes Hammer Blow to Transatlantic Data Flows," *Politico*, July 16, 2020, https://www.politico.eu/article/eu-court-ruling-strikes-hammer-blow-to-transatlantic-data-flows/. See also: Case C−311/18, Facebook Ireland Ltd. vs. Schrems, 2020 E.C.R..

[29] Article 45 of the GDPR. Regulation (EU) 2016/679, of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), 2016 O.J. (L 119), https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596321608879&uri=CELEX:32016R0679.

[30] "Article 14, Hosting: 1. Where an information society service is provided that consists of the storage of information provided by a recipient of the service, Member States shall ensure that the service provider is not liable for the information stored at the request of a recipient of the service, on condition that: a) the provider does not have the actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent; or b) the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information." Directive 2000/31/EC, of the European Parliament and of the Council of 8 June 2000 on Certain Legal Aspects of Information Society Services, in Particular Electronic Commerce, in the Internal Market (Directive on Electronic Commerce), 2000 O.J. (L 178), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32000L0031&from=en. See also: Case C-236/08, Google France v. Louis Vuitton Malletier SA, 2010 E.C.R.; C-238/08, Google France SARL v. Centre National de Recherche en Relations Humaines (CNRRH) SARL, 2010 E.C.R.

[31] Accessible and functional search engines require free information flow, which raises concerns for purposes of policy considerations and regulation of cross-border data flow and transfer of data. Dan Jerker and B. Svantesson, *Private International Law and the Internet*, 3rd ed. (Netherlands: Kluwer Law International B.V., 2016). See also: 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, 2018 O.J. (L 303), http://data.europa.eu/eli/reg/2018/1807/oj/eng.

privacy are key issues in how we access and publicize information in a truly economically globalized digital environment due to the transnational nature of the internet.[32]

There is a widely held idea that Google's share of the digital search engines' market also poses a threat to competition due to the risk of it abusing its dominant position, in both upstream and downstream markets, especially when there are no transparency and accountability tools in place to oversee its algorithms.[33] Alongside this competition concern, the aforementioned issues with regard to users' rights corroborate the argument that there is a growing need for transparency and accountability of Google's algorithms—perhaps not necessarily by means of a disclosure, but by means of a "right to explanation," as introduced by Recital 71 of the General Data Protection Regulation in 2018.[34]

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[32] Access to data has a quintessential role in the maintenance and improvement of each search engine's algorithms.

[33] European Commission, "Antitrust: Commission Fines Google €1.49 Billion for Abusive Practices in Online Advertising," press release, March 20, 2019, http://europa.eu/rapid/press-release_IP-19-1770_en.htm; European Commission, "Antitrust: Commission Fines Google €4.34 Billion for Illegal Practices Regarding Android Mobile Devices to Strengthen Dominance of Google's Search Engine," press release, July 18, 2018, http://europa.eu/rapid/press-release_IP-18-4581_en.htm; Autorità Garante della Concorrenza e del Mercato, "A529 - Sanzione di oltre 100 milioni di euro a Google per abuso di posizione dominante," comunicato stampa, May 13, 2021, https://agcm.it/media/comunicati-stampa/2021/5/A529; "L'Autorité de la concurrence sanctionne Google à hauteur de 220 millions d'euros pour avoir favorisé ses propres services dans le secteur de la publicité en ligne," Autorité de la concurrence, June 07, 2021, https://www.autoritedelaconcurrence.fr/fr/article/lautorite-de-la-concurrence-sanctionne-google-hauteur-de-220-millions-deuros-pour-avoir.

[34] "Profiling: The data subject should have the right not to be subject to a decision, which may include a measure, evaluating personal aspects relating to him or her which is based solely on automated processing and which produces legal effects concerning him or her or similarly significantly affects him or her, such as automatic refusal of an online credit application or e-recruiting practices without any human intervention. Such processing includes "profiling" that consists of any form of automated processing of personal data evaluating the personal aspects relating to a natural person, in particular to analyse or predict aspects concerning the data subject's performance at work, economic situation, health, personal preferences or interests, reliability or behaviour, location or movements, where it produces legal effects concerning him or her or similarly significantly affects him or her. However, decision-making based on such processing, including profiling, should be allowed where expressly authorised by Union or Member State law to which the controller is subject, including for fraud and tax-evasion monitoring and prevention purposes conducted in accordance with the regulations, standards and recommendations of Union institutions or national oversight bodies and to ensure the security and reliability of a service provided by the controller, or necessary for the entering or performance of a contract between the data subject and a controller, or when the data subject has given his or her explicit consent. In any case, **such processing should be subject to suitable safeguards, which should include specific information to the data subject and the right to obtain human intervention, to express his or her point of view, to obtain an explanation of the decision reached after such assessment and to challenge the decision**. Such measure should not concern a child. In order to ensure fair and transparent processing in respect of the data subject, taking into account the specific circumstances and context in which the personal data are processed, the controller should use appropriate mathematical or statistical procedures for the profiling, implement technical and organisational measures appropriate to ensure, in particular, that factors which result in inaccuracies in personal data are corrected and the risk of errors is minimised, secure personal data in a manner that takes account of the potential risks involved for the interests and rights of the data subject, and prevent, inter alia, discriminatory effects on natural persons on the basis of racial or ethnic origin, political opinion, religion or beliefs, trade union membership, genetic or health status or sexual orientation, or processing that results in measures having such an effect. Automated decision-making and profiling based on special categories of personal data should be allowed only under specific conditions." Regulation (EU) 2016/679, of the European Parliament and of the Council of 27 April (my boldface).

This recital, though it does not have an operative nature within the GDPR, can be systematically interpreted alongside articles of the regulation that are operative, in addition to other legal provisions of the European Union. It is my contention that a right to explanation can be established through jurisprudence and administrative procedures that aim to better regulate algorithmic technologies, such as Google's. A right to explanation can thus be consolidated through judicial and administrative interpretations of the law (competition law and fundamental rights, for instance) without necessarily referencing this recital (data protection) in order to be effectively implemented.

Although Recital 71 is merely a declaration included in the GDPR, it may stem from a broader interpretation of the current legal system. That is to say that it is a consequence of legal analysis, not a source of it. A right to explanation in practice would be a way to ensure that information asymmetries are mitigated in the digital environment through legal aspects other than data privacy, with the burden placed on the company in question rather than regulators. If the inner functioning of key internet platforms is better explained, it would better enable the enforcement of competition standards and protection of fundamental rights, as well as allow for fairer protection of intellectual assets.

Despite the fact that search engines may be subject to protection under some current intellectual asset categories and fair competition safeguards,[35] these rights are not absolute, and they create underlying tensions between intellectual property rights and other public-interest-driven regulatory measures.[36] Furthermore, there is still a question of how this

[35] Considerations regarding trade secrets being considered part of the fundamental rights a company may enjoy, in addition to their freedom to conduct business and their right to privacy, will be further analyzed later in this thesis. The categorical status of algorithms will also be further explored throughout this work in order to assess the current state of the art of intellectual property rights. See: Trade-related Aspects of Intellectual Property Rights, art. 39, April 15, 1994, https://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm; Directive (EU) 2016/943, of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-how and Business Information (Trade Secrets) Against Their Unlawful Acquisition, Use and Disclosure 2016 O.J. (L 157) art.2, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016L0943; Charter of Fundamental Rights of the European Union, art. 17, §§ 2, 16, Oct. 26, 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12012P/TXT&from=EN. See also: Stavroula Karapapa and Maurizio Borghi, "Search Engine Liability of Autocomplete Suggestions: Personality, Privacy and the Power of Algorithm," *International Journal of Law and Information Technology* 23, no. 3 (Autumn 2015): 261-289, https://doi.org/10.1093/ijlit/eav009; Lyudmila M. Demydova et al., "Intellectual Property: Search of the Optimum Model of Legal Protection," *Revista Amazonia Investiga* 10, no. 39 (March 2021): 136-148, https://doi.org/10.34069/AI/2021.39.03.13; Frank Pasquale, "Beyond Innovation and Competition: The Need for Qualified Transparency in Internet Intermediaries," *Northwestern University Law Review* 104, no. 1 (Winter, 2010): 105-173, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1686043; Aurelio Lopez-Tarruella, ed., *Google and the Law: Empirical Approaches to Legal Aspects of Knowledge-Economy Business Models* (Den Haag: T.M.C. Asser Press, 2012).

[36] Case C-70/10, Scarlet v. Sabam, 2011 E.C.R § 43. See also: Martin Husovec, "The Essence of Intellectual Property Rights under Article 17(2) of the EU Charter," *German Law Journal* 20, no. 6 (September 2019): 840-863, https://doi.org/10.1017/glj.2019.65; Faisal Santiago, "Trade Secret Protection on Globalization Era,"

right-to-explanation mechanism may be implemented, in particular in contraposition to such a fundamental trade secret for Google's business model.

All the preliminary evidence suggests that search engines—and particularly Google—occupy a unique online position, where there is a convergence of freedom of expression, intellectual property rights, data protection, access to information, freedom of competition and freedom of business models. It remains to be seen whether or not search engines can be properly subjected to such a form of regulation within a framework that is balanced for all parties and interests involved.

1 Research Question and Hypothesis

Google's unique business model, based on surveillance capitalism, is disruptive in such a way, producing multisectorial disputes (concerning competition, intellectual assets, access to information, freedom of expression, data protection), that it requires unique forms of regulation. So far, even though the General Data Protection Regulation, Regulation 2019/1150,[37] Convention 108 (Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data),[38] and its additional protocols, as well as competition initiatives in the European Union, such as the proposals for the Digital Services Act (DSA),[39]

European Research Studies 20, no. 4 (2017): 66-76, https://www.ersj.eu/dmdocuments/2017-xx-4-a-5.pdf; Gianclaudio Malgieri, "Trade Secrets v Personal Data: A Possible Solution for Balancing Rights," *International Data Privacy Law* 6, no. 2 (May 2016): 102-116, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3002685; Elizabeth A. Rowe, "Striking a Balance: When Should Trade-Secret Law Shield Disclosures to the Government?" *Iowa Law Review* 96, no. 3 (2011): 791-836, http://scholarship.law.ufl.edu/facultypub/226.

[37] Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on Promoting Fairness and Transparency for Business Users of Online Intermediation Services, 2019 O.J (L 186), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1150.

[38] Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data, January 28, 1981, ETS 108, https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/108.

[39] Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, COM/2020/825 final, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020PC0825&from=en.

the Digital Markets Act (DMA),[40] and the AI Act,[41] have all advanced the regulatory agenda, they are not enough to provide the sort of algorithmic governance required for Google's search engine at this stage.

Assuming preliminarily that search engines—and Google's search engine in particular—are not neutral, is the right to explanation of algorithmic decisions an appropriate regulatory measure in order to provide better safeguarding of competition, trade secrets, access to information, freedom of expression, accountability, transparency and the right to conduct business online? This research aims to clarify this question with regard to the manner in which Google's search engine operates.[42] It will do so by taking into account the central role of search engines in the information society and will tackle the issue aiming the ultimate objective of defining what a right to explanation would look like, both substantially and in practice, in the context of this search mechanism.

More precisely, I will demonstrate that algorithmic trade secrets may be limited, as a matter of law, without undermining completely its value, in order to provide sufficient information to business and end users. I will propose several means of achieving greater transparency, while in the same token recognizing the market and innovative value of these intellectual assets. In brief, my argumentation is twofold: in the hierarchy of laws in the European Union, users' fundamental rights may take precedence when opposed to trade secrets, thus limiting them, in which case a proportionality analysis of these limitations is necessary; and many technical solutions can be ensured (sometimes even preferably) that do not involve the disclosure of the whole algorithm or that present prohibitive costs for algorithm owners.

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[40] Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), COM/2020/842 final, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020PC0842&from=en.

[41] Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, COM(2021) 206 final, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021PC0206&from=EN.

[42] Amy N. Langville and Carl D. Meyer, *Google's Pagerank and Beyond: The Science of Search Engine Rankings* (Princeton, NJ: Princeton University Press, 2006); Greg R. Notess, "Advanced Search in Retreat," *Online* 36, no. 2 (March/April 2012): 13, https://www.infotoday.com/Online/mar12/On-the-Net-Advanced-Search-in-Retreat.shtml; Rebecca S. Wills, "Google's Pagerank," *The Mathematical Intelligencer* 28, no. 4 (September 2006): 6-11, https://doi.org/10.1007/BF02984696; Joanne M. Leight and Matthew Cummiskey, "Google: So Much More than a Search Engine!" *Journal of Physical Education, Recreation & Dance* 83, no. 1 (January 2012): 9-11, https://doi.org/10.1080/07303084.2012.10598702; Michael P. Evans, "Analysing Google Rankings through Search Engine Optimization Data" *Internet Research* 17, no. 1 (2007): 21, https://doi.org/10.1108/10662240710730470.

Existing laws or currently proposed legislation, in addition to their judicial interpretation, must be aimed at proceduralizing a right to explanation beyond the merely operative and declarative nature of Recital 71 of the GDPR. Under intellectual property law, data protection, consumer law, fundamental rights theory, and, most noticeably, competition law, there are already several legal bases for an effective right to explanation that would serve users in all of these domains.

It is also relevant to highlight that this analysis comprises several research questions related to many aspects of online competition and intellectual assets' regulation, in addition to their respective causal inferences.[43] Some of these inferences need to be further explored in further research even though initial inquiries suggest the results laid out in this analysis. Therefore, in order to better corroborate the claims set out by the hypothesis aforementioned, case studies were conducted, depending on their being brought to European courts, published and analyzed by other scholars. The selection criteria of these cases included: the direct or indirect participation of Google as one of the parties; adjudication providing conceptual support for core issues examined in my analysis, in the form of elements such as trade secrets, data protection, and a balancing exercise of fundamental rights, among others; whether they fell within the judicial scope of the Court of Justice of the European Union and of the European Commission.

2 Methodology

2.1 Research Background

For the purposes of establishing a standpoint and research perspective, it is essential to disclose that my academic background stems from studies in the fields of intellectual property and innovation. This implies that there is a substantial focus on my previous works

[43] "[O]ne of the fundamental goals of inference is to distinguish the systematic component from the nonsystematic component of the phenomena we study." Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (Princeton, N.J: Princeton University Press, 1994), 56.

on regulatory theories of innovation, on the trade-off between private investment and public interest, and on a developmental perspective on worldwide issues regarding international trade and economics. Generally speaking, this previous research entailed an underlying task of striking a delicate fair balance between interests involved in the regulation of intellectual property, both as a private enterprise and as a societal good.

Throughout my undergraduate studies in Brazil, my analysis focused on the compulsory licensing of patents, either to incentivize scientific research (Bolar exemption) or for the purpose of fostering competition due to insufficient exploitation of proprietary rights of patent owners. My master's dissertation was centered on the analysis of intellectual property rights as an incentive to local development by understanding the economic role of geographical indications in both developing countries and in developing regions. It is fair to say that this background provided me with a proclivity toward critical perspectives of the exemptions from intellectual property rights, but also on the contextualization of their necessity within public policies fostering economic growth and innovation.

Since then, by getting involved in research in the field of technology and internet law at Universidade Federal de Minas Gerais, I was able to comprehend better the importance of several areas of intellectual and intangible assets over the last decades, such as trade secrets and, within the domain of intellectual property, copyrights, and patents. Trade secrets, copyrights, and patents, either through the lenses of competition law or through intellectual property law, happen to compose many means to protect algorithm-based business models.[44]

Furthermore, the concept of a trade secret can be characterized as a unique tool to ensure algorithmic protection, with secrecy as a primary feature, distinguishing it from traditional intellectual property categories that require disclosure in order to prevent unlawful use. The purpose of imposing limitations on trade secrets of algorithmic decision-making processes, therefore, is to improve and promote consumer welfare through a requirement of explainability. As I will demonstrate throughout this thesis, absolute secrecy leads to inscrutability, opaqueness, biases, and unfair competition practices.

[44] In Brazil, for example, there is the possibility of registering algorithms as a specific type of intellectual property, in a way that is similar to securing copyright under the Napoleonic legal tradition. For the purposes of this investigation, however, we will consider trade secrets as the main category of intellectual property pertaining to algorithmic business models. This is justified by the fact that trade secrets pose a significant threat to the principles of transparency and accountability, unlike other categories of intellectual property rights, such as patent and copyright.

The field of internet governance studies is currently one of the most challenging and uncertain areas of research for legal scholars, policymakers, and social scientists.[45] Whether in the field of artificial intelligence, internet neutrality, the internet of things (IoT), or privacy, there is a lot of resistance to regulation and a lack of academic, judicial, and legislative consensus regarding how best to regulate or if it is actually necessary to regulate at all.[46] This is especially true when we analyze the interplay between intellectual property rights in internet governance issues, such as in the case of the European Union's Directive on Copyright in the Digital Single Market, which established rules aimed at harmonizing union law applicable to copyright and related rights in the framework of the internal market.[47] As a consequence, some of these challenges are going to be increasingly faced in the everyday lives of magistrates, public officials, and legal practitioners in the near future.

Thus, as academics, we are challenged with the pressing matter of providing adequate solutions—not only to problems already being tried in courts and markets but also to those which are bound to arise. Although such urgent issues do not usually wait for academic research to be conducted and processed, this is also one of my objectives throughout this research: to foresee possible legal responses to problems arising from an ever-growing technological economic market and its equally important public interest in a more democratic, accessible and human internet.

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[45] Jacqueline Eggenschwiler, "Accountability Challenges Confronting Cyberspace Governance," *Internet Policy Review* 6, no. 3 (2017): 1-11, https://doi.org/10.14763/2017.3.712; Stéphane Astier, "Ethical Regulation of the Internet: The Challenges of Global Governance," *International Review of Administrative Sciences* 71, no. 1 (March 2005): 133-150, https://doi.org/10.1177/0020852305051689; Rolf H. Weber, *Shaping Internet Governance: Regulatory Challenges* (Berlin, Heidelberg: Springer, 2010), 23.

[46] Georges Kotrotsios, *Data, New Technologies, and Global Imbalances: Beyond the Obvious* (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2021), 37; Helen Nissenbaum, "From Preemption to Circumvention: If Technology Regulates, Why Do We Need Regulation (And Vice Versa)?" *Berkeley Technology Law Journal* 26, no. 3 (2011): 1367-1386, https://www.jstor.org/stable/24118673; Eric Muraille, "Ethical Control of Innovation in a Globalized and Liberal World: Is Good Science Still Science?" *Endeavour* 43, no. 4 (December 2019): 1-14, https://doi.org/10.1016/j.endeavour.2020.100709; Michel J. G. van Eeten and Milton Mueller, "Where Is the Governance in Internet Governance?" *New Media & Society* 15, no. 5 (August 2013): 720-736, https://doi.org/10.1177/1461444812462850; Claudio Coletta and Rob Kitchin, "Algorhythmic Governance: Regulating the 'Heartbeat' of a City Using the Internet of Things," *Big Data & Society* 4, no. 2 (December 2017): 1-16, https://doi.org/10.1177/2053951717742418.

[47] The Directive of the European Parliament and of the Council on Copyright in the Digital Single Market, COM/2016/0593, was adopted and came into force on June 7, 2019. Directive (EU) 2019/790, of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC, 2019 O.J. (L 130), https://eur-lex.europa.eu/eli/dir/2019/790/oj. See also: Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, COM/2020/825 final.

2.2 Fields of Study Analyzed

All of this considered, this thesis presents doctrinal and legal analyses, considering the need for conceptual definitions and legal limitations at a primary level and stage.[48] The present work is primarily a competition law thesis, whose main purpose is to characterize a right to explanation as a key tool for resolving competition issues. Though there are substantive ancillary benefits in the fields of consumer law, data protection, and fundamental rights, the challenge I pose to the secrecy surrounding algorithms with explainability in this thesis is primarily focused on promoting the enhancement of competition among different players in the digital market, especially search engines.

The analysis in the first, second, third, and fourth chapters will be performed within four main areas of concern, respectively: intellectual property and intellectual assets; data protection; competition law; and users' rights.[49]

The first chapter will not only describe the development of Google Search as a search and advertising tool, but will also discuss the status of Google's algorithms as a core intellectual asset for the company, protected mainly through the concept of trade secrets. The interplay between total transparency from the user and acute opaqueness from the platform will be highlighted with the aim of describing the information and power asymmetry that exists between Google and its community of users through the lens of the value extraction model of surveillance. The historical and factual elements that corroborated Google's algorithmic business model set the ground and highlight the uniqueness of these developments in order to justify new forms of regulation, which will be discussed in the second chapter.

The sociological and economic framework established by Shoshana Zuboff in her 2019 publication on surveillance capitalism sets the foreground for a most-needed analysis of the extraction of value from data as a raw material to the production of revenue in the digital age.[50] For this reason, her work is paramount to the idea that a new set of rules and regulatory

[48] Definition of concepts like technological neutrality, bias, accessibility, democratic digital environments, privacy standards, non-discrimination, open and closed internet, among others.
[49] Referring to a broader and more abstract concept, "user's rights" is an umbrella term under which we can include three primary specific notions of individual users' rights online, including consumers: access to information, freedom of expression, and privacy. Henceforth, when referring to the concept of users' rights, this will be its underlying meaning.
[50] Shoshana Zuboff, *The Age of Surveillance Capitalism* (New York: Profile Books Ltd, 2019).

structures is indispensable for the better functioning of a society that currently exploits personal data indiscriminately and with worldwide proportions.

The second chapter will focus on Google's dependence on users' data to make its search engine a competitive marketing tool. My analysis will frame the current state of the art of data protection within the European Union and investigate recent regulatory advancements that have attempted to modulate the business model of technological platforms into one that observes minimum privacy protection standards. This part of the thesis focuses on the legal framework of a right to explanation in the realm of data protection law. It describes the state of the art of the regulatory approaches adopted so far and it raises awareness for a possible need for further mechanisms to provide better algorithmic transparency. A brief overview of these regulations will be provided although the main legal concept chosen to support these claims is the right to explanation.

The third chapter will be centered on the competition aspects surrounding Google Search, the high dependency of businesses in secondary or ancillary markets on a good ranking on the Search results page and Google's applications, and the fact that the Search platform is considered an essential facility for access to information online. I will also analyze recent competition cases in the European Union, mainly brought about by the European Commission, as well as some of the innovations of its legislative agenda that puts forth stronger regulations for digital environments.

The fourth and last chapter will focus on the balancing exercise of different rights at stake in this thesis' object of study: the rights of innovative companies, such as Google, end-users' and business users' fundamental rights, and the regulatory interests of state actors. Finally, I will list legal and technical proposals to effectively implement a right to explanation with the aim of characterizing strategic regulation as a fundamental tool for improving automated decision-making.

These areas were specifically chosen for their relevance and consequential effects on today's internet governance. Furthermore, they may be used as crucial proxies to limit the scope of algorithmic trade secret protection in order to promote explainability and, consequently, greater consumer welfare.[51] In a sense, each chapter aims to justify a critical

[51] The use of the word "proxy" here represents an analogy to the concept of proxy servers in computer engineering. Proxy servers act as intermediaries for the connection between users and a webpage, a file or another application. Since I aim to use data protection law, consumer law, trade secret law and competition law

assessment of Google's algorithms through different lenses in order to provide the basis for a right to explanation. Of course, there are other possible approaches to regulating algorithms, such as tax law and content moderation, for example, but they will not be analyzed in this research.

For the purposes of this research, primary sources for investigation included physical and online databases available from the Université libre de Bruxelles, the European Commission, Google Scholar, Scopus, Scielo, the SSRN, the CAPES Portal de Periódicos, Research Gate. Using keywords pertaining to the subject, titles and literature were collected in the forms of journal articles, website articles, books, and official legal texts (such as the General Data Protection Regulation) in English and, occasionally, in Portuguese.

A bibliographical review on technology neutrality and technological determinism will entail research of authors such as, but not limited to, Jonathan Zittrain, Robert J. Whelchel, Michael Shallis, Abbe Mowshowitz, Neil Postman and Lawrence Lessig. Even though internet law and economic law are commonly associated with private law, my intention was to perform this research mainly from a public-policy and regulatory perspective. Analyzing the state of the art of literature on this topic involves key areas such as competition, protection of algorithms as trade secrets in business models, users' fundamental rights online, data protection regulation, and other emerging regulatory propositions, such as privacy by design, non-discrimination by design, and artificial intelligence regulation. Thus, in order to achieve all of the research goals, this investigation necessarily explored multidisciplinary sources, which did not result in a multidisciplinary piece of investigation, however. The analysis performed still maintains its legal focus and considers the judicial outcomes of such bibliographical materials.

The European Union is the main legal framework to be examined in order to better assess the state of internet governance in one of the most progressive regulatory markets nowadays, as well as to understand Google's legal standpoints regarding this matter.[52] As an overall theoretical framework, regulation is to be analyzed as a supporting mechanism for potential claims regarding algorithmic governance. Questions as to the need for regulation, its

as intermediaries to achieve a legal right to explanation, these are being referred to as legal "proxies" between users and algorithmic transparency.

[52] Nitasha Tiku, "How Europe's New Privacy Law Will Change the Web, and More," *Wired*, March 19, 2018, https://www.wired.com/story/europes-new-privacy-law-will-change-the-web-and-more/.

nature, its performance assessment and its rational planning in order to achieve better regulation for digital markets are currently of the utmost importance.

At first, it may seem like my analysis cherry-picks legal concepts, since both European and American bibliographical references are used to inform my conclusions, but the main focus is still the tools offered within the jurisdictional boundaries of the European Union. In a sense, the occasional comparison with American concepts highlights the current frontier of some discussions, such as the different standards for applying the Essential Facilities Doctrine in Chapter 3. Additionally, as this work aims to be a blueprint for a right to explanation of the use of algorithms, it has to take into account areas of study where these concepts have been further developed by legal scholars. Finally, these technologies are global, practically universal in their impact, even though the laws to which they are subjected are national/local. This warrants a more holistic approach to the legal instruments involved in the matter.

Grappling with internet governance also demands an investigation within the boundaries of regulation of technology theory. A need for ideal regulatory balance has also been on the agenda of the European Union for quite a while, in particular within the Lisbon Agenda, but most recently within the current artificial intelligence agenda[53] and the digital single market strategy,[54] which, respectively, aim to position the EU as a worldwide promoter of ethical AI and a level playing field on which digital networks and innovative services can flourish. In turn, other jurisdictions and institutions reference the EU as a governance model for different markets in various areas.[55] For instance, the Organisation for Economic Co-operation and Development (OECD) has recently set out ethical standards for artificial intelligence development, which have been received as a policy model for countries even

[53] "The Commission is proposing the first ever legal framework on AI, which addresses the risks of AI and positions Europe to play a leading role globally. The regulatory proposal aims to provide AI developers, deployers and users with clear requirements and obligations regarding specific uses of AI. At the same time, the proposal seeks to reduce administrative and financial burdens for business, in particular small and medium-sized enterprises (SMEs). The proposal is part of a wider AI package, which also includes the updated Coordinated Plan on AI. Together they guarantee the safety and fundamental rights of people and businesses, while strengthening AI uptake, investment and innovation across the EU." "Regulatory Framework Proposal on Artificial Intelligence," European Commission, accessed August 30, 2021, Policies, https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai. See also: "Welcome to the European AI Alliance platform!" Furutium, accessed August 30, 2021, European AI Alliance, https://futurium.ec.europa.eu/en/european-ai-alliance/pages/about.

[54] European Union, "The EU's new digital single market strategy," communication, August 17, 2015 (last updated), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:3102_3.

[55] "[D]ebates regarding the quality of regulation spread beyond European countries towards emerging economies such as India and Brazil, embedding these countries further in a globalized regulatory discourse." Robert Baldwin, Martin Cave, and Martin Lodge, eds., *The Oxford Handbook of Regulation* (New York: Oxford University Press, 2010), 4.

outside its membership.[56] Furthermore, the World Bank develops institutional and performance assessments of regulatory structures worldwide in order to devise better governmental and non-governmental practices in each jurisdiction.[57]

Further investigation reveals that these predicaments regarding best regulatory practices for state intervention in markets have been present for centuries in governmental studies, especially in the consideration of surveillance capitalism as a more recent feature of neoliberalism.[58] However, for the purposes of this research, we will narrow the scope of the analysis in order to encompass exclusively the development of technology, innovation, and, more specifically, algorithmic technology and its incentives and challenges from a regulatory perspective.

As previously disclosed, my background in academic research is deeply rooted in a developing-world perspective of global issues surrounding intellectual property and innovation. Nonetheless, with reference to this particular work, I do not intend to expand on the issues of Brazilian policymaking, its regulatory oversight, or the nature of technological innovation in the country. This is a study of broader regulation choices made within the framework of the European Union in recent years, in particular in the field of internet law (especially users' privacy and application providers' liabilities), which have introduced a new element to algorithmic governance worldwide: the right to explanation.

2.3 Purpose of the Research

This work will also attempt to provide a blueprint for the concept of a right to explanation for use in jurisdictions other than the European Union. Therefore, it is essential to study this concept's regulatory dynamics in the market where it was first (and most comprehensively) introduced. Even though this study does not use comparative law techniques, internet governance initiatives necessarily entail the analysis and adoption of legal strategies inspiring and influencing legislation and judicial action in other regions. One example is how aspects

[56] "OECD Principles on Artificial Intelligence," Organisation for Economic Co-operation and Development, June 2019, http://www.oecd.org/going-digital/ai/principles/.
[57] "Projects & Operations," The World Bank, accessed June 2, 2019, http://projects.worldbank.org/.
[58] Joseph Alois Schumpeter, *Capitalism, Socialism, and Democracy*, 3rd ed. (London: Routledge, 2008).

of the General Data Protection Regulation have inspired the Brazilian General Data Protection Law, similar to how European Data Protection Board guidelines are being used to inform and benchmark judicial opinions and businesses' best practices in other jurisdictions.

Therefore, this is not a comparative study of ways to address a right to explanation in the European Union and Brazil. Instead, I intend to provide a roadmap for the possible hurdles and conceptual frameworks of its implementation in the future. Certainly, if successful, this research will be able to be used as a basis for understanding how to better implement a right to revision of automated decisions,[59] which was recently introduced in Brazilian legislation and entered into force in 2020.[60] There are significant differences between this legal mechanism and the European Union's right to explanation, the analysis of which would require a thorough comparative legal study, contextualization of both legal systems and rationales, and extensive research into the implementation processes in the Brazilian and European jurisdictions. This is not the purpose of this particular work at this time, although I occasionally reflect on it in the course of my personal research.

2.4 Case Study

This investigation analyzes Google's search engine as its main case study although, occasionally, other search engines might be called into question, depending on their relevance for highlighting a major difference to Google's. In addition, it is important to recognize that Google's search engine itself comprises various types of search tools, such as image searching, Google Scholar, Google Maps, video searching (integrated into YouTube, which is under the Alphabet Inc. umbrella), news, shopping, books, flights, translation, finance, and personal applications (searches for an individual's own information uploaded to Google Cloud), all of which were gradually integrated into the main search platform as additional

[59] Renato Monteiro, "Existe um direito à explicação na Lei Geral de Proteção de Dados do Brasil?" *Artigos Estratégicos*, 39, (dezembro 2018), https://igarape.org.br/existe-um-direito-a-explicacao-na-lei-geral-de-protecao-de-dados-no-brasil/.

[60] By the time of the writing of this thesis, the Brazilian Data Protection Authority is also in the process of being assembled and operational. It is expected that guidelines and further regulamentation will be provided by this governmental body, taking into account national and international references, either legislative or doctrinal. Lei Geral de Proteção de Dados Pessoais. Lei No. 13.709, de 14 de Agosto de 2018, Col. Leis Rep. Fed. Brasil, http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/Lei/L13709.htm.

functionalities.[61] For the purposes of this research, Google's keyword search engine will be the main focus of the analysis.

These are all different facets of the same core business, derived from a search engine that relies on keywords – Google's initial and flagship product. Despite that, each of them may be nuanced in its own fashion, which means that some of the functioning mechanisms are dependent on different logics for performing a query. This distinction can be useful for competition compliance assessments, for example.[62] For the purposes of this particular research, the term "search engine" will hereinafter refer to all keyword-search mechanisms currently included under the umbrella of Google's search engine, available at URLs such as www.google.com and its national versions, such as www.google.be and www.google.com.br. When necessary and pertinent, distinctions will be drawn in order to distinguish one search mechanism from another, appropriately mentioning the reasoning and the purpose behind such distinction.

It is also important to differentiate Google, which was incorporated in 1997, from its now-parent company, Alphabet Inc., which was incorporated in July 2015.[63] This distinction may not be significant at first glance, but eventually leads to different business strategies for

[61] See a timeline of Google Search functionalities and significant chronological events for the purposes of this investigation in Annex I. The purpose of this graphical representation of the history of the case study regards the necessary contextualization of the tools added to the platform. For example, to understand why the European Commission only began regulating and fining Google's anti-competitive activities in 2017, it is important to contextualize the growth of its parallel software endeavors.

[62] Benjamin Edelman and Damien Geradin, "Android and Competition Law: Exploring and Assessing Google's Practices in Mobile," *European Competition Journal* 12, no. 2-3 (2016): 159-194, https://doi.org/10.1080/17441056.2016.1254483; Ioannis Kokkoris, "The Google Case in the EU: Is There a Case?" The Antitrust Bulletin 62, no. 2 (June 2017): 313-333, https://doi.org/10.1177/0003603X17708362; Korbinian von Blanckenburg, "Google Search Abuses Dominant Position to Illegally Favour Google Shopping: An Economic Review of the EU Decision," *Digital Policy, Regulation and Governance* 20, no. 3 (2018): 211-224, https://doi.org/10.1108/DPRG-05-2017-0020. See also: The European Commission has a recent history of analyzing Google's anti-competitive practices in a fragmented matter, which also reflects its strategy of analyzing such laws from an economic perspective. If we take into account different relevant markets, it's easier to estimate potential damage to competition and estimate liability. In the case of a company that operates in various sectors, such as Alphabet Inc. (Google's main umbrella company), a segregated analysis of its overall practices can lead to an analysis of its potentially anti-competitive procedures. Adam Satariano and Jack Nicas, "E.U. Fines Google $5.1 Billion in Android Antitrust Case," *The New York Times*, July 18, 2018, Technology, https://www.nytimes.com/2018/07/18/technology/google-eu-android-fine.html.

[63] "Alphabet Inc., incorporated on July 23, 2015, is a holding company. The Company's businesses include Google Inc. (Google) and its Internet products, such as Access, Calico, CapitalG, GV, Nest, Verily, Waymo and X. The Company's segments include Google and Other Bets. The Google segment includes its Internet products, such as Search, Ads, Commerce, Maps, YouTube, Google Cloud, Android, Chrome and Google Play, as well as its hardware initiatives. The Google segment is engaged in advertising, sales of digital content, applications and cloud offerings, and sales of hardware products. The Other Bets segment is engaged in the sales of Internet and television services through Google Fiber, sales of Nest products and services, and licensing and research and development (R&D) services through Verily. Google is engaged in investing in infrastructure, data management, analytics and artificial intelligence (AI)." "Alphabet Inc. GOOG.O," Reuters, accessed August 1, 2020, https://www.reuters.com/finance/stocks/company-profile/GOOG.O.

Alphabet Inc. particular enterprises. For the purposes of this research, the term Google will chronologically refer to its original business model prior to the creation of Alphabet Inc., as the company continues to branch out into new models for businesses, including hardware. Therefore, when the name Alphabet Inc. is used in the following, it signals that a necessary distinction between Alphabet Inc. and Google Search must be drawn in order to make these claims, so that no confusion arises when referring to either one of them.

2.5 Territorial Scope

This research is conducted within the territorial scope of the European Union jurisdictional framework. The right to explanation and its repercussions, as byproducts of the General Data Protection Regulation, are the key elements that drive the literature review, the case-law study, and the legal analysis performed. Thus, it is worth clarifying that, even though legal provisions and concepts from other jurisdictions may be used in order to compare and contrast with EU law, for instance, the United States, the focus of the sources analyzed will be on the European Union.

2.6 Secondary Sources and the Need for Further Research

At a secondary level and stage of the research, social and economic data will be used to support or refute initial propositions and claims. Reports, data, treaties, and findings of the scientific community are all information sources. In addition, international declarations, legal frameworks, and transcripts of conferences related to internet governance will be contextualized with published articles, books, and memorandum of understanding.

Traditional legal sources have been occasionally complemented with non-traditional literature, such as investigative reports, conference speeches, working papers, and articles from news blogs by reliable journalistic sources, for example, in order to enhance the scope of information available for theoretical analysis. Since many of the subjects analyzed deal with short cycles of innovation, ever-changing technologies, and facts and figures that are not rapidly subjected to academic and legal scrutiny, these sources allow for greater speed,

flexibility, and opportunities to include valuable information during research. Additionally, access to a vast array of traditional bibliographic resources has been compromised due to the COVID-19 pandemic, which rendered impossible a second research stay in Brussels and, consequently, privileged online resources in lieu of traditional legal and academic sources.

This research mainly comprises a qualitative analysis of the literature available regarding regulation of technology theory, internet governance, intellectual property, consumer law and data protection. At this stage of the research, no quantitative analysis of jurisprudential data have been conducted, especially due to the fact that the right to explanation—the main object of this study—is yet to be addressed in courts, required of national data protection authorities and application providers, and effectively enacted by digital platforms.

Initial research reveals that some cases dealing with trade secrets in the Court of Justice of the European Union—an aspect analyzed throughout this research—are centered on the issue of labor law and supposed infringements of confidentiality agreements. It is my initial assumption that, in the near future, with the development of further research, it will be possible to see rulings on cases dealing specifically with trade secrets and the right to explanation in the European Union. This would eventually provide specialized jurisprudence on the matter and corroborate some of the hypotheses set out in this primary analysis.

I did not intend to perform empirical investigations as yet even though some form of field research may later prove to be necessary in order to support or refute my initial claims, especially with regard to technically testing different search engines' results (same inputs, different outputs), such as Bing and DuckDuckGo, for the purposes of comparison. Although it would illustrate some of the main issues concerned in the research, especially debunking the idea of a "neutrality" in Google's search engine through a comparative perspective, it requires a multidisciplinary team of research to further gather data and set technical parameters, which should occur in a more controlled digital environment, with previously set criteria of evaluation.

Furthermore, the interplay between freedom of expression and internet governance is complex, in the sense that there are cases in which state administrative procedures and judicial review may prove necessary. Even though there is still a need for a better understanding of the relationship of various interests involved in this matter, State actors can intervene either by censoring and controlling online accessibility and content (by means of

their judicial, executive, and legislative branches) or by protecting freedom of expression and other online rights, or by doing both. Additionally, understanding how algorithms in search engines work from a perspective of computer science, how search-engine-optimization tools often change according to Google's own search-engine transformations, and how data collection depends on previous browsing history and IP location might pose a challenge for unbiased empirical research.

Since some of the concerns regarding Google may involve secret violations of privacy, data mining, consumer profiling, and biased algorithmic decisions, studying such factors in this equation might prove difficult. This research thus relies on official and publicly available data, judicial decisions, and other academic analyses on the subject. Google practices might also substantially change between the course of this research and its publication and evaluation, acquiring direct competitors and changing some of its policies, however unlikely this may seem as of now.[64]

2.7 Time Frame of Data Collection

Irrespective of current cases being brought to European courts regarding this matter, scientific sources collection for this work was conducted between September 2018 and July 2021. Therefore, the publication of new legislation, legislative proposals, bibliographies, and court decisions after the latter date will not be included in my study. An internet governance analysis requires a specific timeframe disclaimer due to the rapidly changing nature of the subject and a fixed window of time to reach comprehensive conclusions.

[64] "Limited information is often a necessary feature of social inquiry. Because the social world changes rapidly, analyses that help us understand those changes require that we describe them and seek to understand them contemporaneously, even when uncertainty about our conclusions is high. The urgency of a problem may be so great that data gathered by the most useful scientific methods might be obsolete before it can be accumulated." Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (Princeton, N.J: Princeton University Press, 1994), 6.

2.8 Specific Definitions of Key Concepts

Some concepts used in this thesis are either expressed in technical terminology employed from a legal perspective, are broader in meaning than traditional legal concepts tend to be but relevant in scope, or have been recently introduced (or proposed) by legislation that aims to regulate digital markets. This carries with it the risk of leading the reader to make subjective interpretations of the subject matter that are highly heterogeneous and open to question. As such interpretations would in many ways hinder the goal of this thesis, various key concepts used in the text will be highlighted in bold throughout and mentioned below, in this section, accompanied by a brief legal, technical, or doctrinal definition. Hopefully, this will aid each reader in navigating the text and ascertaining the meaning of the essential concepts.

Abuse of a Dominant Position

Consists of abuse perpetrated by holders of dominant positions in an important market that, among other things: imposes unfair prices and trading conditions; limits production, markets, or technical development in detriment to the general interests of consumers; applies different conditions to equivalent transactions with different partners, creating advantage asymmetries; requires the inclusion in business contracts of supplementary obligations that have no connection to the subjects of these contracts.[65]

Accountability

It means to be able to demonstrate compliance with certain legal requirements.[66] The concept of accountability within the context of data protection encompasses the responsibilities involved in data processing. In practice, it imposes obligations on data controllers to report operational procedures, provide management documents, and explain decision-making processes in order to assign certain responsibilities to the parties involved in data processing. These demonstrations of compliance to the law are part of the increased transparency standards set out by the GDPR.

[65] Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012E/TXT.
[66] Article 5.2. 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) (Text with EEA Relevance), 2016 O.J. (L 119), http://data.europa.eu/eli/reg/2016/679/oj/eng.

Algorithm

Although its meaning is currently subject to conceptual expansion, an algorithm is a sequence of mathematical commands, varying in the scope of their complexity, that conducts special functions previously determined by its creators.[67]

Behavioral Economics

This is the study of economic and psychological aspects of human practices combined in order to investigate how people (consumers, users, individuals, etc.) behave and why.

Behavioral Surplus

Collateral data that, in the context of search engines, consists of "the number and pattern of search terms, how a query is phrased, spelling, punctuation, dwell times, click patterns, and location," among other information.[68] Such data is used by companies like Google to fuel the personalization of search results, increase their capability to deduce behavioral patterns, and improve engagement with advertisements.

Business User

"'Business user' means any private individual acting in a commercial or professional capacity who, or any legal person which, through online intermediation services offers goods or services to consumers for purposes relating to its trade, business, craft or profession."[69]

End-User

Also considered a consumer, the concept of end-user in the present thesis refers to the person who performs a query on Google's search engine and relies on its services to access relevant information online. Additionally, "'consumer' means any natural person who is acting for purposes which are outside this person's trade, business, craft or profession."[70]

[67] Yuri Gurevich, "What Is an Algorithm?" in *SOFSEM 2012: Theory and Practice of Computer Science* (Berlin, Heidelberg: Springer Berlin Heidelberg, 2012), 31-42.
[68] Zuboff, *Age of Surveillance Capitalism*, 67.
[69] Article 2.1. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[70] Article 2.4. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

Essential Facility

A critical piece of infrastructure that can be tangible or intangible and with which a natural monopolist in a particular market is able to "deny access" to current or potential competitors in order "to foreclose rivals in adjacent markets."[71]

Explainability

In the context of algorithms, "explainability concerns the ability to explain both the technical processes of an AI system and the related human decisions (e.g. application areas of a system). Technical explainability requires that the decisions made by an AI system can be understood and traced by human beings. Moreover, trade-offs might have to be made between enhancing a system's explainability (which may reduce its accuracy) or increasing its accuracy (at the cost of explainability)."[72]

Gatekeeper

"Providers of core platform providers can be deemed to be gatekeepers if they: (i) have a significant impact on the internal market, (ii) operate one or more important gateways to customers and (iii) enjoy or are expected to enjoy an entrenched and durable position in their operations."[73]

Gateway

Something that serves as a means of entry or access. In the case of access to information online, Google Search can be considered a gateway, since it is a nodal point intermediating the relationship between users who seek information and the websites that provide the information they seek.

Information Asymmetry

An unbalanced difference in knowledge between different economic agents, which may cause distortions in the way these agents interact with one another. According to Jean Tirole,

[71] Sandeep Vaheesan, "Reviving an Epithet: A New Way Forward for the Essential Facilities Doctrine," *Utah Law Review* (March 8, 2010): 911, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1567238. See also: Edward Iacobucci and Francesco Ducci, "The Google Search Case in Europe: Tying and the Single Monopoly Profit Theorem in Two-Sided Markets," European Journal of Law and Economics 47, no 1 (February 2019): 24, https://doi.org/10.1007/s10657-018-9602-y.
[72] European Commission, "Ethics Guidelines for Trustworthy AI," (April 8, 2019), 18, https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1.
[73] Article 3.1. Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), COM/2020/842 final.

"decisions made by economic actors (households, firms, the state) are constrained by limited information. We see the consequences of these informational limits everywhere. They make it difficult for citizens to understand and evaluate policies of their governments, or for the state to regulate banks and powerful firms, to protect the environment, or to manage innovation. [. . .] The problem of limited (or 'asymmetric') information is everywhere: at the heart of institutional structures and of our political choices—and at the heart of economics for the common good."[74]

Inscrutability

Lack of explainability of computer programs, usually due to their complexity, but also because of legal safeguards such as trade secret protections.[75]

Instrumentarian Power

The organization, herding, and tuning of society to achieve a type of social confluence "in which group pressure and computational certainty replace politics and democracy, extinguishing the felt reality and social function of an individualized existence."[76]

Marketplace

According to the European Commission, "A merchant platform (or online marketplace) is an online platform which allows users to buy online items from different sellers without leaving the platform."[77] An "online marketplace" is a service provider as defined in point (b) of Article 2 of Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000, regarding certain legal aspects of information society services—particularly electronic commerce in the Internal Market ("Directive on Electronic Commerce")—that allows consumers and traders to conclude online sales and service contracts on its website.[78]

[74] Jean Tirole, *Economics for the Common Good*, trans. Steven Rendall (Princeton, N.J.: Princeton University Press, 2017), 12.
[75] Joshua A. Kroll, "The Fallacy of Inscrutability," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 376, no. 2133 (November 28, 2018): 6, https://doi.org/10.1098/rsta.2018.0084.
[76] Zuboff, *Age of Surveillance Capitalism*, 21.
[77] Case AT.39740, Google Search (Shopping), 2017 E.C. § 191.
[78] Regulation (EU) 524/2013 of the European Parliament and of the Council of 21 May 2013 on Online Dispute Resolution for Consumer Disputes and Amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC (Regulation on Consumer ODR), 2013 O.J. (L *165*), http://data.europa.eu/eli/reg/2013/524/oj/eng.

Neutrality

The concept of neutrality entails non-discrimination. Non-neutral algorithms would be discriminatory algorithms in the sense that they are biased towards what are usually preconceived parameters. However, discrimination can be at the core of some algorithmic business models, such as Google's. Discrimination is of the utmost importance to ranking results, determining relevance, and personalizing the outcomes of automated decision-making. Thus, neutrality is a usually idealized concept whose actual aim, in the context of algorithm governance, is to allow only the necessary amount of discrimination for optimum algorithmic performance.

Online Platform

Online platform means a provider of a hosting service which, at the request of a recipient of the service, stores and disseminates information to the public.[79] Additionally, "platforms are digital infrastructures that enable two or more groups to interact" by positioning themselves as intermediaries between customers, advertisers, service providers, producers, and suppliers.[80]

Personalization

The tailoring of a service or product in order to accommodate specific needs and desires of individuals and sometimes groups or segments of individuals.

Profiling

"'Profiling' means any form of automated processing of personal data consisting of the use of personal data to evaluate certain personal aspects relating to a natural person, in particular to analyse or predict aspects concerning that natural person's performance at work, economic situation, health, personal preferences, interests, reliability, behaviour, location or movements."[81]

Ranking

"'Ranking' means the relative prominence given to the goods or services offered through online intermediation services, or the relevance given to search results by online search

[79] Article 2 (h). Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, COM/2020/825 final.
[80] Nick Srnicek, *Platform Capitalism* (Cambridge: Polity Press, 2017), 43.
[81] Article 4.4. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.

engines, as presented, organised or communicated by the providers of online intermediation services or by providers of online search engines, respectively, irrespective of the technological means used for such presentation, organisation or communication."[82]

Recommendation System

"'Recommender system' means a fully or partially automated system used by an online platform to suggest in its online interface specific information to recipients of the service, including as a result of a search initiated by the recipient or otherwise determining the relative order or prominence of information displayed."[83]

Search Engine

"'Online search engine' means a digital service that allows users to input queries in order to perform searches of, in principle, all websites, or all websites in a particular language, on the basis of a query on any subject in the form of a keyword, voice request, phrase or other input, and returns results in any format in which information related to the requested content can be found."[84]

Search Engine Optimization

Techniques that aim to improve users' ranking on a search engine results page; or rather, a form of hacking the tool's parameters to improve how a user's content appears on the results page.

Surveillance Capitalism

According to Shoshana Zuboff, surveillance capitalism consists of a sophistication of the latest phase of capitalism, which took place throughout the 2000s. Though disguised as personalization, it monetizes the human experience through instrumentarian power and modifies human behavior for commercial gain by replacing laws, politics, and social trust with a type of technological sovereignty that is privately administered.[85]

[82] Article 2.8. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[83] Article 2(o). Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, COM/2020/825 final.
[84] Article 2.5. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[85] Zuboff, *Age of Surveillance Capitalism*, 513-514.

Technological Inevitabilism

Also referred to as technological determinism or techno-fundamentalism,[86] this concept "precludes choice and voluntary participation. It leaves no room for human will as the author of the future"[87] when it comes to the development of technology and its impacts on individuals and society. It regards skepticism of the emerging technological advances and developments in the digital realm as regressive, obsolete, and naive, asserting that technology must not be impeded if society is to prosper.[88]

Trade Secret

"'Trade secret' means information which meets all of the following requirements: a) it is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question; b) it has commercial value because it is secret; c) it has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret."[89]

Transparency

For the purposes of the present thesis, the various acceptations of the concept of transparency can be considered in relation to: the end-user of Google's search engine, or rather the person who performs the search; the business user who wishes to see his or her content (website, blog, service, product, etc.) displayed and well-ranked on the results page; and regulators in a broad sense, which encompasses competition and data protection authorities, magistrates, superior courts, and members of legislative branches of government. Since transparency is relational, that is, the form it takes may depend on the agent the platform is being transparent to, end-users, business users, and regulators will each require different levels of transparency. It does not mean, necessarily, absolute algorithmic transparency. Rather, it entails the absence of secrecy regarding the functioning of an algorithm. In other words, it requires that information about the motives, general parameters, and result patterns of an automated decision-making process be provided by digital platforms that employ such processes.

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[86] Vaidhyanathan, *Googlization of Everything*, 50.
[87] Zuboff, *Age of Surveillance Capitalism*, 227.
[88] Zuboff, 226.
[89] Article 2.1. Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) against Their Unlawful Acquisition, Use and Disclosure (Text with EEA Relevance), 2016 O.J. (L 157), http://data.europa.eu/eli/dir/2016/943/oj/eng.

Two-Sided Platform

Online intermediary platforms that interact with and extract value from both sellers and customers.

Users' Rights

User's rights is an umbrella term under which it is possible to include four primary specific notions of individual users' rights online, including consumers: access to information, freedom of expression, non-discrimination, and privacy.

Chapter 1

Silicon Valley and the Conception of Google's Surveillance Capitalism

1 Introduction

In this chapter, I will demonstrate that in the course of developing its search engine to what it is today, Google devised a new business model unlike others in Silicon Valley at the time the company emerged, one that relies on the extraction of data from users in order to allow for the customization of ads on its results page. This search engine differed greatly from others that were in vogue at the time, such as AltaVista and Yahoo, especially because it originally considered the interests of the user first and those of the advertisers second. Unlike its competition, Google was able to grow its market share, emphasizing highly personalized and relevant results instead of an ads-based results page.

I will explain that Google's algorithmic model increased the capacity of the company to rely on data from other applications it also provided for free, such as Gmail, Google News, and YouTube. Users' preferences, navigation patterns, and geolocation were all factored into the reasoning behind the results provided by its search application. Advertisers perceived the growing trend of user preference for this increasingly trustworthy platform and started investing in its ads in order to appear on the results page and generate more traffic to their websites. Google even devised a specific auction model per click to make these transactions cheaper, results-driven and, consequently, fairer to advertisers.

To safeguard the property behind its business model, which was at the core of Google's revenue, the company sought to devise strategies to protect it as a trade secret. Unlike copyrights, patents, and other computer programs that run on users' personal computers and that would be externally visible to competitors, the algorithm behind Google's

search engine was easily protected behind its seamlessly simple and pristine website. Many assumed to know what the factors behind the automated decisions of the algorithm were, but these factors were, in fact, never revealed. Such a strategy protected Google's trade secrets from competitors and allowed the company to complexify its services, increasingly monetize its advertising, and finance the development of products and services in secondary markets.

Therefore, the current state of protection of Google's core algorithm, the one behind its search engine, is of the utmost importance to this chapter and, consequently, this work. The historical and foundational roots of Google in Silicon Valley will have long-lasting consequences for the company's future, both as a dominant player in several markets and as a nodal point for users to access information online.

2 The Roots of Silicon Valley and Google

In order to understand the massive importance of Google's business model in contemporary society, it is imperative first to analyze the context in which the company was created, shaped, developed, and internationalized. Nowadays, Silicon Valley's startup culture is not only exported by the very technology industry to which it gave rise, but is also incorporated and looked to as a guide by policymakers worldwide, according to particularities of their countries, as has been observed in the case of Israel, for example.[90] In comparison with other capitalist means of wealth production, especially those of the industrial and financial-economic sectors,[91] Google's new methods of conducting business entailed different and innovative strategies for funding, contracting, innovating, marketing, and pushing for

[90] "What makes Israel so innovative and entrepreneurial? The most obvious explanation lies in a classic cluster of the type Harvard professor Michael Porter has championed, Silicon Valley embodies, and Dubai has tried to create. It consists of the tight proximity of great universities, large companies, start-ups, and the ecosystem that connects them—including everything from suppliers, an engineering talent pool, and venture capital. Part of this more visible part of the cluster is the role of the military in pumping R&D funds into cutting-edge systems and elite technological units, and the spillover from this substantial investment, both in technologies and human resources, into the civilian economy." Dan Senor and Saul Singer, *Start-up Nation: The Story of Israel's Economic Miracle* (New York: Twelve Hachette Book Group, 2009), 171.
[91] Manuel Castells, *A sociedade em rede*, 20ª ed. (São Paulo: Paz e Terra, 2019), 154-155.

(de)regulation, among other activities.[92] Thus, one way of understanding Google today is to also look at where it began, why it transformed, and what it has become.

First and foremost, the conjuncture of Silicon Valley's **startup culture** may be explained by a confluence of factors in the San Francisco Bay area (Northern California, United States), some of them geographical, others historical, but the majority economic. If one looks to the (metaphorical) geographical indications of Silicon Valley, it seems that the region has a particular *terroir* propitious to the emergence of what would become an embryo of various other twenty-first-century ventures throughout the world.[93]

Despite several attempts at reproduction in Israel, Chile, China, Estonia, and even Brazil, these places have not been quite successful at attracting the same large volume of investments, entrepreneurs, and research & development teams as Silicon Valley, nor have they been able to create an ecosystem of software innovation like that of California.[94] Oddly, despite being one of the most important high-tech regions in the world, Silicon Valley does

[92] Martin Kenney, *Understanding Silicon Valley: the Anatomy of an Entrepreneurial Region* (Stanford, California: Stanford University Press, 2000). See also: Annika Steiber, *The Google Model: Managing Continuous Innovation in a Rapidly Changing World* (Springer International Publishing, 2014), 41; Mathew Le Merle and Alison Davis, *Corporate Innovation in the Fifth Era: Lessons from Alphabet/Google, Amazon, Apple, Facebook, and Microsoft* (Corte Madera, CA: Cartwright Publishing, 2017), 150.

[93] According to Article 22 of the Agreement on Trade-Related Aspects of Intellectual Property Rights, "Geographical indications are, for the purposes of this Agreement, indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin." A region in Recife, Pernambuco, Brazil, nationally recognized for providing information and communication technology services through technology development, maintenance, and support, was granted the geographical indication of "*Porto Digital"* ("Digital Port") for its products and services. This region is currently considered one of the main research and development hubs for innovation in the country. "Agreement on Trade-Related Aspects of Intellectual Property Rights," Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization § (1994), https://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm.

[94] This does not mean that these other initiatives were not successful in their own ways. China, for example, has invested heavily in the development of hardware, both high-tech and low cost, especially in Shenzhen, absorbing a lot of the electronic and microchip supply chains into companies that sell products all over the world. Currently, there is an extraordinary effort toward the development of artificial intelligence in the country. Israel, for its part, has focused on governmental procurement in the field of security, surveillance, and defense. Different approaches have led to various models of innovation ecosystems. Having said that, Silicon Valley is still home to the headquarters of some of the most valuable tech companies in the world, such as Alphabet Inc., Microsoft, and Facebook. My intention here is to highlight the fact that this innovation-based business model has been deemed a strategic goal for many peripheral economies worldwide and, as such, ought to be taken into consideration in future regulations aiming to set minimum parameters and best practices for innovative businesses. Considering innovation a fundamental element of consumer welfare in digital economies, which will be better explained in chapters 3 and 4, can have implications for regulatory approaches concerned with competition. See: Henry Etzkowitz, "Is Silicon Valley a Global Model or Unique Anomaly?" *Industry and Higher Education* 33, no. 2 (April 2019): 83–95, https://doi.org/10.1177/0950422218817734; Andreas Berger and Alexander Brem, "Innovation Hub How-To: Lessons From Silicon Valley," *Global Business and Organizational Excellence* 35, no. 5 (July/August 2016): 58-70, https://doi-org.ezproxy.ulb.ac.be/10.1002/joe.21698.

not have a history of centuries-long industrialization nor a tradition of highly-skilled workers. Thus, even its *terroir* is innovative.

One of the most significant contributions to the development of the area was the existence of Stanford University with its innovation labs, honors programs, and strong emphasis on various fields of engineering.[95] The spillover effect[96] of a university that has invested so heavily in its School of Engineering significantly contributed to the founding of several companies surrounding it, such as Hewlett Packard and Varian Associates, mostly through former students, their incubators, and military-financed research.[97]

To a certain extent, Google's foundation is deeply embedded in Stanford University's computer engineering laboratories. Both of Google's creators, Sergey Brin and Lawrence Page, were Ph.D. candidates in its Computer Science program in 1998 with research interests that comprised, but were not limited to, areas such as human-computer interaction, the structure of the web, search engines, personal data mining, scalability of information access interfaces, and "information extraction from unstructured sources."[98]

Furthermore, during the course of its history, the field of transistor and semiconductor manufacturing has employed not only large unskilled workforces but also gradually qualified ones to achieve technological advances in electronic components and adapt to a continually changing market.[99] This, in turn, led to a constant need for professionals to update their

[95] "Every technology cluster has a collection of great educational institutions. Silicon Valley famously got its start in 1939 when William Hewlett and David Packard, two Stanford University engineering graduates, pooled their funds of $538 and founded Hewlett-Packard. Their mentor was a former Stanford professor, and they set up shop in a garage in nearby Palo Alto." Senor and Singer, *Start-up Nation,* 302-303.
[96] Events in one context that occur due to something else, another cause, in a context that is seemingly unrelated at first glance. For example, externalities of economic activity derived from government sponsored investments.
[97] Kenney, *Understanding Silicon Valley*, 16.
[98] Sergey Brin and Lawrence Page, "The Anatomy of a Large-Scale Hypertextual Web Search Engine," *Computer Networks and ISDN Systems* 30, no. 1–7 (April 1998): 107, https://doi.org/10.1016/S0169-7552(98)00110-X.
[99] "The development and implementation of planar processing at Fairchild Semiconductor Corporation was what really threw the floodgates open to extremely reliable silicon transistors and microchips of endlessly growing complexity. The junction transistor's inventor, William Shockley, dimly perceived this bright future, but he lacked the management skills to bring it off under his direction. In the early 1960s, he began teaching at Stanford University, first as a lecturer and then as a professor of engineering and applied science, while his company slowly failed and was eventually dissolved. Yet without Shockley's contributions in bringing together this stellar group of researchers and introducing them to silicon technology, there would be no Silicon Valley—at least not in Northern California." Michael Riordan, "From Bell Labs to Silicon Valley: A Saga of Semiconductor Technology Transfer, 1955-61," *The Electrochemical Society Interface* 16, no. 3 (2007): 40, https://iopscience.iop.org/article/10.1149/2.F04073IF.

skills.[100] These characteristics turned out to be essential to the computer chip industry that would follow.

Some authors even indicate a history of immigration, especially from Asian nations, as a key factor for technological development in the area.[101] Due to cultural characteristics attributed to first and second-generation Asian immigrants, it is argued that there is a general propensity of this population to not only focus on hard sciences but also diversify the university and corporate environments in which their members often immerse themselves.[102] For decades, both universities and companies in the San Francisco Bay area have specialized in attracting foreign talents to their most prominent projects. Therefore, the area also has become home to a large number of expatriates.

With the aim of better understanding the regulatory context in which companies like Google, and its business model, have flourished, it is worth noting that the United States government and its military institutions have been heavily involved in the development of digital technology and the internet itself,[103] which stemmed from the ARPANET (Advanced Research Projects Agency Network) project in the 1960s.[104] The American tech industry has relied heavily on close ties with the Department of Defense in several instances of its history, as demand for its innovative products and services increased with the development and manufacture of defense technologies and the development of intelligence services.

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[100] "[T]he characteristics of early Bay Area electronics companies closely match the structure of industrial organization so widely hailed in Silicon Valley today, albeit on a much smaller scale. A leading role for local venture capital; a close relationship between local industry and the major research universities of the area; a product mix with a focus on electronic components, production equipment, advanced communications, instrumentation, and military electronics; an unusually high level of interfirm cooperation; a tolerance for spinoffs; and a keen awareness of the region as existing largely outside the purview of the large, ponderous, bureaucratic electronics firms and financial institutions of the East Coast." Kenney, *Understanding Silicon Valley*, 16-17.

[101] "[T]here is recruitment of talent, especially scarce technical and entrepreneurial talent, from literally the entire world. To meet the needs of their clients, Silicon Valley law firms have developed a substantial capability—sometimes in-house, sometimes networked—in immigration law." Kenney, 195. See also: Castells, A *sociedade em rede*, 180.

[102] For more information, see: Thomas Kemeny, "Immigrant Diversity and Economic Performance in Cities," *International Regional Science Review* 40, no. 2 (March 2017): 186-197, https://doi-org.ezproxy.ulb.ac.be/10.1177%2F0160017614541695; AnnaLee Saxenian, "Silicon Valley's New Immigrant High-Growth Entrepreneurs," *Economic Development Quarterly* 16, no. 1 (February 2002): 25–26, https://journals-sagepub-com.ezproxy.ulb.ac.be/doi/abs/10.1177/0891242402016001003.

[103] "[I]n countries that owe their growth to innovation—and in regions within those countries, like Silicon Valley—the State has historically served not just as an administrator and regulator of the wealth creation process, but a key actor in it, and often a more daring one, willing to take the risks that business won't." Mariana Mazzucato, *The Entrepreneurial State* (Great Britain: Penguin Random House, 2018), 4.

[104] Joris van Hoboken, *Search Engine Freedom: On the Implications of the Right to Freedom of Expression for the Legal Governance of Web Search Engines*, Information Law Series, vol. 27 (Alphen aan den Rijn, The Netherlands: Kluwer Law International, 2012), 15.

In 2001, after the 9/11 terrorist attacks, there was also a growing demand from the government for information regarding users' behavior online, so the United States' intelligence and defense communities carried out several actions to get closer to Silicon Valley and its blooming technologies. One example of the ensuring relationship is the search mechanism Google specifically designed for intelligence agencies in the United States.[105] This relationship was facilitated by the lack of regulation of surveillance capitalism and behavioral surplus extraction at that time.[106] There were no specific regulations or rulings concerning users' privacy online, which allowed for the expansion of surveillance in the country by both the government and the private sector.

Alongside Sergey Brin and Lawrence Page's close academic ties to Stanford University, the potential of Google's search engine could already be foreseen in a paper they published in the same year describing their business model for an information retrieval mechanism on the web.[107] Their company's name came from a common misspelling of the word "googol," which refers to a number that is represented by the algorism "1" followed by a hundred zeros and expressed as "10^{100}." Their mission was to "organize the world's information and make it universally accessible and useful."[108]

Interestingly, in contrast to the practices of commercially-oriented search engines, the creators of Google also wanted to make the aggregated data produced by its search engine available to other researchers and students, with the ultimate goal of promoting academic technological innovation.[109] They went so far as to publicly state that they "expect that

[105] "In 2003 Google also began customizing its search engine under special contract with the CIA for its Intelink Management Office, 'overseeing top secret, secret and sensitive but unclassified intranets for CIA and other IC agencies.' Key agencies used Google systems to support an internal wiki called Intellipedia that allowed agents to share information across organizations as quickly as it was vacuumed up by the new systems." Shoshana Zuboff, *The Age of Surveillance Capitalism* (New York: Profile Books Ltd, 2019), 115-116. See also: Shoshana Zuboff, "Big Other: Surveillance Capitalism and the Prospects of an Information Civilization," *Journal of Information Technology* 30, no. 1 (March 2015), https://ssrn.com/abstract=2594754.

[106] The concept of behavioral surplus will be explained in detail in this first chapter. It refers to the additional information provided by data collection from the user, including the very keywords typed during a search query. Zuboff, *Age of Surveillance Capitalism*, 111-112. See also: Nick Srnicek, *Platform Capitalism* (Cambridge: Polity Press, 2017), 52-53.

[107] Brin and Page, "Anatomy," 117.

[108] "Our Approach to Search," Our Mission, Google, accessed May 7, 2019, https://www.google.com/intl/en/search/howsearchworks/mission/.

[109] "Aside from tremendous growth, the Web has also become increasingly commercial over time. In 1993, 1.5% of Web servers were on .com domains. This number grew to over 60% in 1997. At the same time, search engines have migrated from the academic domain to the commercial. Up until now most search engine development has gone on at companies with little publication of technical details. This causes search engine technology to remain largely a black art and to be advertising oriented." Brin and Page, 109.

advertising funded search engines will be **inherently biased** towards the advertisers and away from the needs of the consumers."[110]

As I will demonstrate over the following sections of this work, Google's creators eventually yielded to market pressures and the financial opportunities of an advertisement-based business model, especially because they were able to perfect it to an impressive level of accuracy. Moreover, it was precisely the fear of bias towards advertisers expressed by Lawrence Page and Sergey Brin that led to current concerns, with considerable competition and innovation ramifications.

3 The Development of a Different Kind of Search Engine through Behavioral Surplus

It is hard to imagine nowadays, especially because of Google's omnipresence in our daily lives, but search engines were not part of the online terrain during the first years of the web, despite emails and bulletin boards being popular in the 1980s and beginning of the 1990s. At the end of the 1990s, the web grew exponentially, along with its vast heterogeneous and unstructured collection of documents with no way to browse through them efficiently. Thus, as the internet expanded in users and content, it was becoming increasingly difficult to access information online, either through human maintained lists or low-quality search engine results based on keyword matching.

As a consequence, search engines became a quintessential tool for accessing information online in modern society.[111] With the vast amount of directories, files, sites, platforms and other resources available on the web, services that provided an efficient path between the user that sought useful information and the content itself emerged as an

[110] Sergey Brin and Lawrence Page, "Reprint of: The Anatomy of a Large-Scale Hypertextual Web Search Engine," *Computer Networks* 56, nº 18 (December, 2012): 3825–33, https://doi.org/10.1016/j.comnet.2012.10.007.

[111] "Web search is one of the most intensively used types of services online. Without effective search tools, the Internet would hardly be the valuable source of information it is today. Any speaker on the Internet relies on the help of search intermediaries to reach an audience. This implies that the way search engines function determines to a large extent whether we effectively enjoy our freedom to receive and impart information and ideas on the Web." Hoboken, *Search Engine Freedom*, 4.

indispensable means of securing traditional rights online, such as access to information, the free flow of information, and freedom of expression.[112]

The storage capacity of website indices needed to be increased without reducing the output speed of results, and the quality of the crawling technology of the engine needed to be improved so that results would better match users' queries.[113] Lawrence Page and Sergey Brin thus devised algorithms capable of quality filtering, hypertextual information analysis, and better relevance judgment for ranking results.[114] Searches were faster than the competition's, user-centered, and guided by a philosophy that seemed to be anti-advertising, mainly represented by Google's almost blank home page, which is a characteristic of the search engine to this day.[115]

Google made it easier to search archives and to qualify the relevance of each document according to the individual research performed through their search engine.[116] The PageRank mechanism was specifically designed back then to produce quality results from search queries, ranking them according to the probability of a match.[117] If a page was pointed to by many other pages or if it was mentioned on several sites at the time of the search, such as Yahoo!, it received a better ranking on the results page.[118]

Interestingly, this is a very familiar manner of assessing the relevance of information in the academic realm. When scholars look for journals to publish their work, an aspect they strongly take into consideration is the journal **impact factor** among relevant peers, "a measure reflecting the average number of citations of articles published in science and social

[112] The link between search engines and civil rights such as freedom of expression and access to information will be further developed in other sections of this work.
[113] Web crawlers collect information from hundreds of billions of pages and organize this information in a search index. "Como Funciona a Pesquisa," Rastreamento e Indexação, Google, accessed May 6, 2019, https://www.google.com/intl/pt-BR/search/howsearchworks/crawling-indexing/.
[114] Brin and Page, "Anatomy," 109.
[115] Greg Lastowka, "Google's Law," *Brooklyn Law Review* 73, no. 4 (Summer 2008): 1336, https://works.bepress.com/lastowka/4/.
[116] "Google is not simply an apparatus of dataveillance from above but an apparatus of value production from below. Specifically, Google produces and accumulates value through the PageRank algorithm and by rendering the collective knowledge into a proprietary scale of values." Matteo Pasquinelli, "Google's PageRank Algorithm: A Diagram of the Cognitive Capitalism and the Rentier of the Common Intellect," in *The Politics of Search Beyond Google*, ed. Konrad Becker and Felix Stalder (London: Transaction Publishers, 2009), 4.
[117] "Whereas many critical texts abuse of [*sic*] a Foucauldian jargon and indulge in the visualisation of a digital Panopticon to describe Google, more precisely its power should be traced back to the economic matrix that is drawn by the cabalistic formula of PageRank — the sophisticated algorithm that determines the importance of a webpage and its hierarchical position within the search engine results." Pasquinelli, 3.
[118] Brin and Page, 109.

science journals."[119] Therefore, this characteristic of academic publishing was imported into Google's search mechanism, which rates pages online according to their relative importance to other pages, especially those which are more trustworthy, and according to the date of creation, number of accesses, updates, and other quality assessments.

It is especially informative to observe that Google's search queries produce "collateral data" in addition to the keywords initially typed in the search bar. The process currently takes into account "the number and pattern of search terms, how a query is phrased, spelling, punctuation, dwell times, click patterns, and location."[120] At first, this additional information, which Shoshana Zuboff calls **behavioral surplus**, was reinvested in the improvement of the platform and the functioning of the search engine. Information on users' research patterns and their browsing history of results were utilized to correct imperfections and improve service.[121]

Of course, using these resources solely for purposes of service improvement does not generate a large amount of revenue for a company. Even though Google's creators did not initially foresee a profit-based business model in this mechanism to improve searches, which is corroborated by the amount of public funding invested in their research at Stanford University,[122] it was becoming evident to Lawrence Page and Sergey Brin that their company needed some kind of strategy to increase its profits. Two of the main characteristics of Silicon Valley venture capital investments are its impatient money and highly inflationary speculative drive, which later also led to the dot-com bubble burst of 2001.[123]

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[119] "Journal Impact Factor Report 2019-2020," SCI Publication, accessed on December 1, 2020, https://www.scipublication.org/.

[120] Zuboff, *Age of Surveillance Capitalism*, 67.

[121] Zuboff, 69. Analyzing methods of explaining how algorithms operate, Riccardo Guidotti et al. point out that behavioral surplus is a critical piece of this automated-decision puzzle: "[A] black box might use additional information besides that explicitly asked to the user. For example, it might link the user's information with different data sources for augmenting the data to be exploited for the prediction." Riccardo Guidotti et al., "A Survey of Methods for Explaining Black Box Models," *ACM Computing Surveys* 51, no 5 (January 23, 2019): 36, https://doi.org/10.1145/3236009.

[122] "The research described here was conducted as part of the Stanford Integrated Digital Library Project, supported by the National Science Foundation under Cooperative Agreement IRI-94 11306. Funding for this cooperative agreement is also provided by DARPA and NASA, and by Interval Research, and the industrial partners of the Stanford Digital Libraries Project." Brin and Page, "Anatomy," 116.

[123] "The amount of venture capital pumped into Silicon Valley between 1995 and 2000 was about $65 billion, nearly one-third of total national venture capital investment during the period. The capital that came into Silicon Valley created a new wave of growth there. Approximately 172,000 high-tech jobs were created during this 5-year period. The infusion of venture capital and speculation in stocks led to huge runups in individual stock prices and in entire stock markets, such as the NASDAQ, on which many high-tech corporations are listed, and created the 'dot-com bubble.' On March 10, 2000, the NASDAQ reached a peak of 5,132.52. As the enormous gap between valuation and performance became apparent, Internet stocks collapsed, with Silicon Valley at ground zero of the crash." Amar Mann and Tian Luo, "Crash and Reboot: Silicon Valley High-Tech Employment and Wages: 2000–08," *Monthly Labor Review* 07 (January, 2010): 60, https://www.bls.gov/opub/mlr/2010/01/art3full.pdf. See also: Srnicek, *Platform Capitalism*, 19-20.

Thus, the company pivoted and changed its business strategies, utilizing its users' unique behavioral surplus to increase revenue.[124] This may have seemed like a subtle change at first, but it ended up making a massive difference in the search engine market: instead of targeting its users by displaying advertisements related only to search queries (keywords), Google started using all the information collected from users to improve the quality of the advertisements it displayed on its results page.[125] With its increasing ability to predict users' preferences, Google created AdWords, an "astonishing lucrative project."[126]

The idea behind Google AdWords (which would later become simply "Google Ads") was to provide a perfectly-tailored match between advertisers' ads (normally linking them to their landing page) and users' individual profiles.[127] The price of the advertisement would vary according to its position on the search results page and the number of clicks derived from that ad in an auction-based system, which operated in a very rapid and efficient manner (also known as Real Time Bidding - RTB).[128]

Whereas other search engines would base their targeted advertising on submitted keywords and the average number of users accessing the platform, Google devised a form of selling ad space that also incentivized bidders to compete for more favorable allocation of

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[124] "During its evolution, Google followed a very different path than many of its competitors. Today its competitors are largely imitating its model, yet are unable to dethrone its centrality in search." Lastowka, "Google's Law," 1329. See also: Björn Lundqvist, "Big Data, Open Data, Privacy Regulations, Intellectual Property and Competition Law in an Internet-of-Things World: The Issue of Accessing Data," in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 195, https://doi.org/10.1007/978-3-662-57646-5.

[125] "In other words, Google would no longer mine behavioral data strictly to improve service for users but rather to read users' minds for the purposes of matching ads to their interests, as those interests are deduced from the collateral traces of online behavior. With Google's unique access to behavioral data, it would now be possible to know what a particular individual in a particular time and place was thinking, feeling, and doing." Zuboff, *Age of Surveillance Capitalism*, 79.

[126] Zuboff, 76. See also: Srnicek, *Platform Capitalism*, 52-53.

[127] For more information on Google's auction-based business model, see: Damien Geradin and Dimitrios Katsifis, "'Trust Me, I'm Fair': Analysing Google's Latest Practices in Ad Tech from the Perspective of EU Competition Law," *European Competition Journal* 16, no 1 (January 2, 2020): 11-54, https://doi.org/10.1080/17441056.2019.1706413.

[128] "Google maximizes the revenue it gets from that precious real estate by giving its best position to the advertiser who is likely to pay Google the most in total, based on the price per click multiplied by Google's estimate of the likelihood that someone will actually click on the ad." Peter Coy, "The Secret to Google's Success," *Bloomberg Businessweek*, March 6, 2006, https://www.bloomberg.com/news/articles/2006-03-05/the-secret-to-googles-success. See also: Warren Bennis, "Google's Growth Engine: The Secret of Google's Success Is Its Way of Turning Talented Engineers into an Extraordinarily Creative Team. But Can This Team Survive Its IPO?" *CIO Insight* 1, no. 39 (June 1, 2004): 25, https://www-proquest-com.ezproxy.ulb.ac.be/trade-journals/googles-growth-engine-secret-success-is-way/docview/212923927/se-2?accountid=17194; Thomas W. Simpson, "Evaluating Google as an Epistemic Tool," *Metaphilosophy* 43, no. 4 (July 2012): 426-445, https://doi-org.ezproxy.ulb.ac.be/10.1111/j.1467-9973.2012.01759.x.

their publicity resources. This strategy significantly increased the inherent value of Google's advertising placements in the market and, as a consequence, their revenue. From a publicity standpoint, the ability to target an audience based on not only age brackets and location (local, national, or international, as revealed by geolocation) but also their previous browsing patterns (thanks to the collection of cookies that can inform the customization of ads) allow for the ideal form of marketing.[129]

With the growing trend of generating data from all types of sources, including the "offline" world,[130] publicity can become even more individualized in the future.[131] Approaches to doing this include methods of targeting known as "granular targeting" and "long-tail targeting," with which every single individual's needs from the demand curve can be best served according to their personalized and tailored necessities.[132] Basically, this is

[129] Per Christensson, "Cookie Definition," *TechTerms*, July 9, 2011, https://techterms.com/definition/cookie. See also: Jean-Pierre I. van der Rest et al., "A Note on the Future of Personalized Pricing: Cause for Concern," *Journal of Revenue and Pricing Management* 19, no 2 (April 2020): 115, https://doi.org/10.1057/s41272-020-00234-6.

[130] The expanding network of IoT (Internet of Things) devices also increases the sources of data production. The vast availability of data and digital metrics, coupled with IoT, provides unimaginable connection possibilities: burglar alarm devices, traffic volume sensors for the automated timing of traffic lights, geolocation of loads and of passengers for the generation of metrics of processes and people, watering of plants and trees according to the climate and the daily solar incidence, and public and private lighting through motion sensors. With regard to the profiling of users for advertising purposes, for example, it is already possible to draw fairly accurate representations of individuals depending on the places they visit, the pages they access, the purchases they make, and the social (digital) circles in which they are inserted. Through a policy of geolocation tracking and cookie collection, this data is aggregated during the time we spend online and underpin the ideal choice of target audience for ads to which we are subject on platforms such as Facebook, Twitter, and Instagram, not just on Google. According to Etezadzadeh, "this will result in a parallelization of the real and virtual worlds, or a dynamic real-time image of the world. Self-optimizing and self-learning systems will integrate the data collected and start to identify patterns based on the large amount of data available, i.e., they will begin to understand their meaning. Humans as a source of error (e.g., in entering data) and analog process disruptions will progressively be eliminated. Systems will give recommendations for complex actions based on automatically optimized algorithms once developed by humans. They will process information in new forms, from new perspectives, and in new contexts, which means that future search engines will be able to answer highly complex questions autonomously, for example." Chirine Etezadzadeh, *Smart City - Future City?: Smart City 2.0 as a Livable City and Future Market* (Wiesbaden: Springer Vieweg, 2016), 41. See also: Rest et al., 113–18.

[131] "Digital services and distributed devices now increasingly operate on a linked-up basis, in which information is shared between networks of devices and service providers, making use of unique user identifiers to provide seamless data sharing and personalized experiences using machine learning and AI." Sandra Wachter, "Data Protection in the Age of Big Data," *Nature Electronics* 2, no. 1 (January, 2019): 6, https://doi.org/10.1038/s41928-018-0193-y.

[132] "[...] algorithmic decision is not made solely on the basis of the data from that targeted individual. The decision rests on a limited amount of personal data from this individual, but behind that decision is a wealth of data from other people or sources. The millions of pieces of data that are collected and analysed to create the knowledge, models or predictions, are in principle unrelated to the data that are used to apply the knowledge, models or predictions in the application phase of big data." Manon Oostveen and Kristina Irion, "The Golden Age of Personal Data: How to Regulate an Enabling Fundamental Right?" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 16, https://doi.org/10.1007/978-3-662-57646-5.

every publicist's dream: the ability to reach precisely the people who are one step away from buying what they are trying to sell, in an individualized form.

According to Shoshana Zuboff, this was a crucial business strategy for Google, which made intelligent use of its exclusive access to user's behavior, not only to improve the search engine application but also to create an extremely profitable source of revenue for the company.[133] The flowchart below explains this cycle, in which behavioral data generated by users is applied to improve Google's services by means of individualized analysis (Google Analytics). This process creates behavioral surplus, which assists the prediction of consumer behavior and provides the perfect audience for Google's real clients: advertisers. Surveillance revenue is then reinvested not only in smarter predictive technology but also in other applications under the Alphabet Inc. umbrella in order to multiply sources and opportunities for exclusive data collection from users.[134]

[133] Zuboff, *Age of Surveillance Capitalism,* 150.

[134] According to Evgeny Morozov, the company has even outgrown its initial business model, venturing into other applications and diversifying its sources of income. "[I]t is a mistake to see [Google] as a company in the search engine business, or in the advertising business; in fact, its business is predictive information, and there are many other ways to make it profitable without even resorting to advertising or to search results" (my translation). Evgeny Morozov, *Big Tech: A ascensão dos dados e a morte da política* (São Paulo: Ubu Editora, 2018), 151.

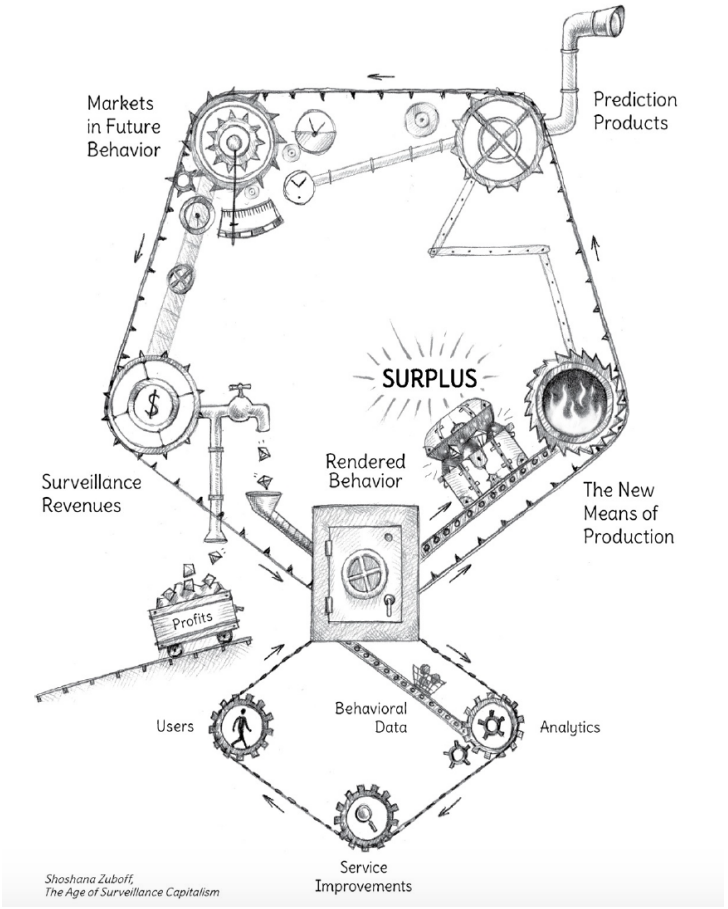

Figure 1. Extraction of behavioral surplus according to Shoshana Zuboff [135]

Other companies later followed suit, such as Facebook. The social network's "business model is built on capturing as much of our attention as possible in order to encourage people to create and to share more information about who they are and who they want to be."[136] The **predictive analysis** stemming from this platform also fuels a robust advertisement industry and is also diffused on Instagram and bolstered by WhatsApp (businesses under Facebook's umbrella). Just like Google's search engine and its parallel applications, these different prediction products are put to use by several of Facebook's applications. Like many other Silicon Valley cases of success, this business model is also subject to replication by startups.[137]

[135] Zuboff, *Age of Surveillance Capitalism*, 97.
[136] Christopher Hughes, "It's Time to Break Up Facebook," *The New York Times*, May 9, 2019, Opinion, https://www.nytimes.com/2019/05/09/opinion/sunday/chris-hughes-facebook-zuckerberg.html. See also: Ashley Deeks, "Facebook Unbound?" *Virginia Law Review* 105, (February 2019): 1-17, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3341590.
[137] According to Bruce Schneier, "many companies manipulate what you see according to your user profile: Google search, Yahoo News, even online newspapers like the New York Times. This is a big deal. The first listing in a Google search result gets a third of the clicks, and if you're not on the first page, you might as well not exist. The result is that the Internet you see is increasingly tailored to what your profile indicates your interests are." Bruce Schneier, *Data and Goliath: The Hidden Battles to Collect Your Data and Control Your*

Thus, Google started investing substantially in data analysis and predictive science. Perfecting the art of advertising became the company's core business since a considerable part of its revenue was (and has since been) derived from Google Ads.[138] It is no exaggeration to state that

> Google can be described as a global rentier that is exploiting the new lands of the internet with no need for strict enclosures and no need to produce content too *[sic]*. In this picture, Google appears as pure rent on the meta dimension of information that is accumulated through the digital networks. Google does not possess the information of the internet but the fastest diagram to access and measure the collective intelligence that has produced it.[139]

In the image below, one can see the design of a Google search engine query using the term "e-reader."[140] The sponsored ads, which appear in the form of a "carousel" of e-reader options, including prices and images (to facilitate consumer experience), and regular sponsored ads (notice the discreet "Ad" sign right before the URL), are very similar in design to the non-sponsored results that follow immediately after them.[141]

World (New York: W.W. Norton & Company Inc, 2015), 135. See also: Luciana Monteiro Krebs et al., "Tell Me What You Know: GDPR Implications on Designing Transparency and Accountability for News Recommender Systems," *CHI EA'19: Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems* (May, 2019): 3, https://doi.org/10.1145/3290607.3312808.

[138] "The bulk of Google's 162-billion-dollar revenue in 2019 came from its proprietary advertising service, Google Ads. [. . .] The rest of Google's 2019 revenue came from an assortment of non-advertising related projects. These initiatives include a diverse set of projects from both online and offline businesses. Included in the list of 'other revenues' is income from related online, media, and cloud computing businesses such as the Play Store, Chromecast, Chromebooks, Android, Google Apps, and the Google Cloud Platform." Eric Rosenberg, "How Google Makes Money (GOOG)," Investopedia, June 23, 2020, https://www.investopedia.com/articles/investing/020515/business-google.asp. See also: Ming-Hone Tsai, Yu-De Lin, and Yea-Huey Su, "A Grounded Theory Study on the Business Model Structure of Google," *International Journal of Electronic Business Management* 9, no. 3 (September 2011): 231-242, https://www.proquest.com/docview/902124154; Dirk Lewandowski et al., "An Empirical Investigation on Search Engine Ad Disclosure," *Journal of the Association for Information Science and Technology*, 69, no. 3 (March 2018): 420-437, https://doi.org/10.1002/asi.23963.

[139] Pasquinelli, "Google's PageRank," 10.

[140] The search was performed in Brussels, Belgium, on June 6, 2019, on my personal device, using the Google Chrome browser, which allows for tracking, geolocation, and other types of personalization techniques. This information is relevant to Google's search engine not only for determining the most suitable ads to show me regarding my query, but also the most relevant non-sponsored result for my research question, which also happens to be the same Belgium and Dutch e-commerce company, Cool Blue. "About Coolblue: Anything for a Smile," Coolblue, accessed June 6, 2019, https://www.coolblue.be/en/about-coolblue.

[141] Some authors, especially those in the field of content marketing and communications, call non-sponsored ads "organic results." Even though specialized literature may use this term occasionally, I am purposefully avoiding it in order to refrain from any confusion with regard to legal terms, instead using literal descriptive concepts.

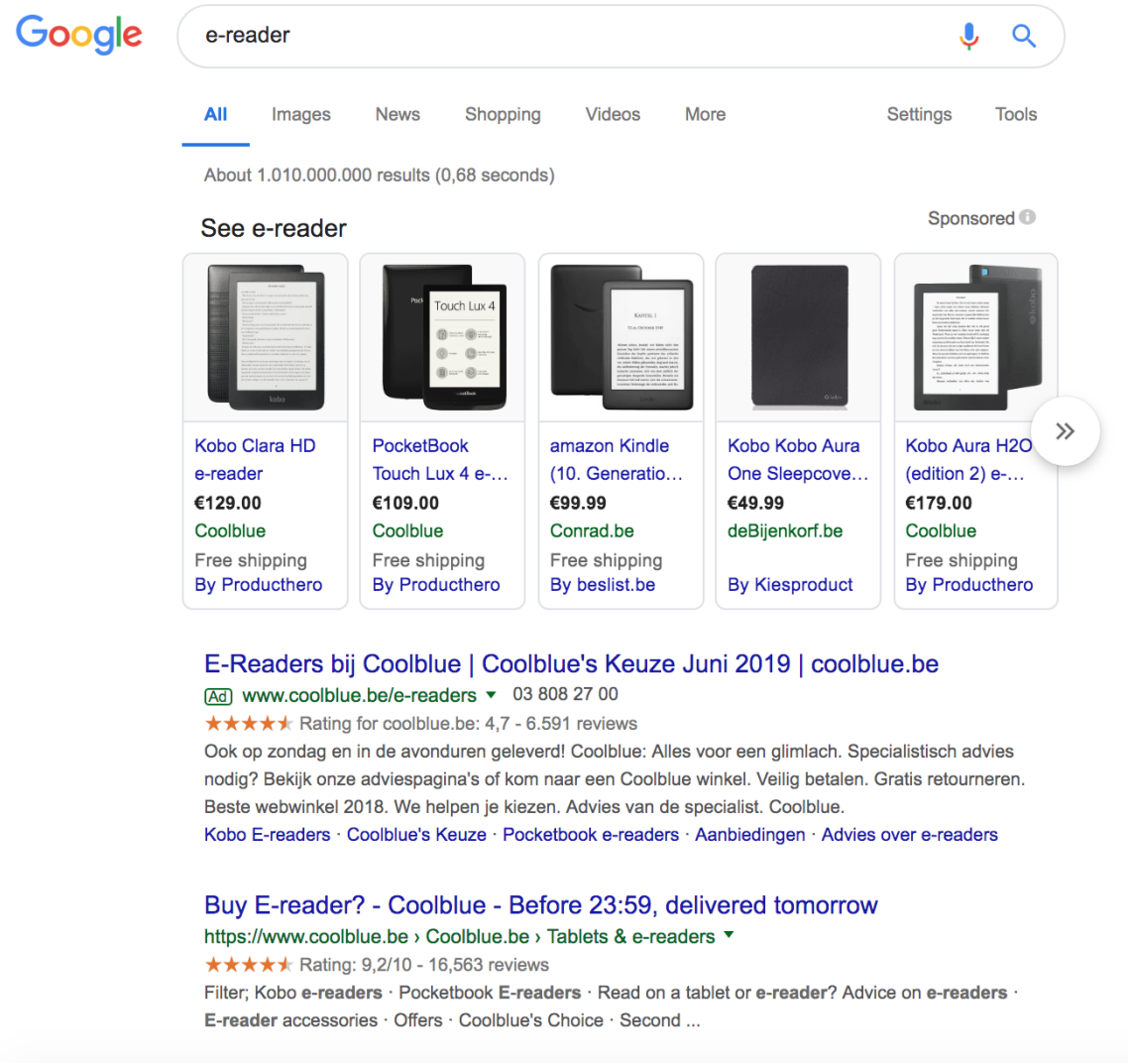

Figure 2. Test query on Google's search engine

For the sake of comparison, a second query was performed using the same term, "e-reader," on the DuckDuckGo search engine, a less popular platform that promises not to "store your personal information. Ever." DuckDuckGo assures users that "our privacy policy is simple: we don't collect or share any of your personal information"[142] (my translation). If no personal information is collected, one can assume that both sponsored ads and non-sponsored results from queries are not influenced by geolocation, browsing profile, tracking history, or any other means of gathering personal information.

[142] In order to best attain a better level of "neutrality," the search was performed on the Tor browser, another tool that promises to help prevent collection of personal information from its users by means of VPN (virtual private networks). However, proper empirical tests would better be performed by means of web browsers and computers free from personal data, or in controlled digital environments, e.g., with exactly the same set of data influence, such as geolocalization and browsing history. This does not purport to be a valid scientific empirical test, but an illustrative example. "Privacidade simplificada," DuckDuckGo, accessed June 6, 2019, https://duckduckgo.com/.

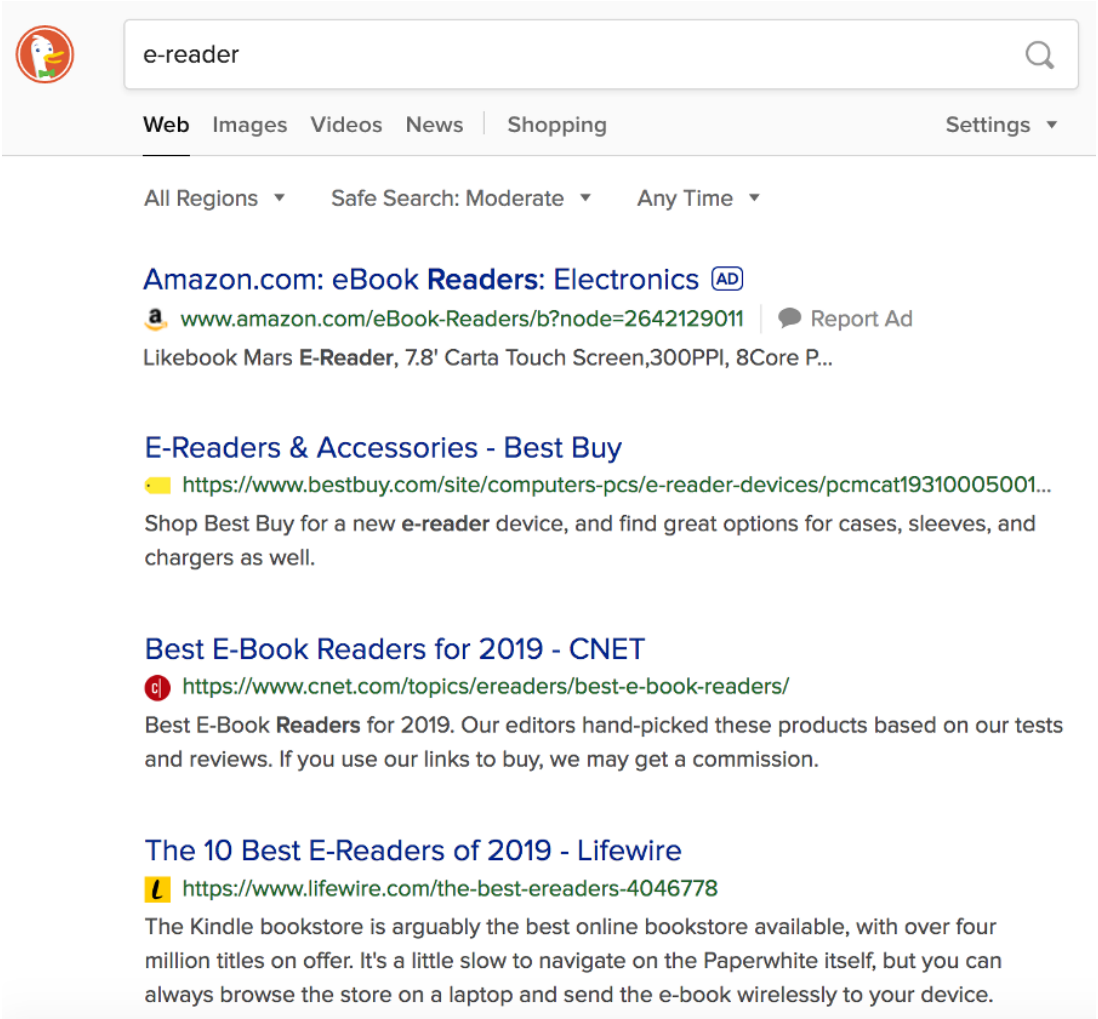

Figure 3. Test query on DuckDuckGo's search engine

From these results, it is possible to conclude that the search engine does not assume that the search was performed in Belgium; neither does it suggest actual devices for purchase. Instead, it provides a sponsored ad (for Amazon.com, with a sign reading "Ad" displayed on the right-hand side of the title of the first result). Following the ad, it provides a non-sponsored link to an established American e-commerce website (Best Buy), then two links to blog posts with curated content that analyze the technical and economic aspects of different e-readers.

With this very simple and cursory empirical comparison, it is possible to infer that different approaches towards the use of personal data in search queries with the same keywords will most likely result in different outputs. Since research has shown that users are

more inclined to click on items appearing on the first page of results,[143] this also shows that search engines like Google generate much more consumer-based and tailored search outputs, as they display a wider variety of sponsored options on the top of their list of results. Not only is users' behavior essential to Google's advertising machinery, but it also dramatically shapes how and which results are portrayed to them.

4 Surveillance Capitalism as a New Business Strategy

Over time, Google grew and gained even more market share. Its business model has worked successfully over almost two decades, which now provides little incentive for the company to diversify or change its policies regarding the extraction and exploitation of behavioral surplus. Therefore, potential adverse outcomes engendered by such practices may need to be dealt with by means of different types of regulation, which is a subject that will be further discussed later in this work.

Surveillance capitalism as a business strategy was adopted by companies such as Facebook, which would later rival Google in some areas. In addition to this, companies under the Alphabet Inc. umbrella have followed suit. YouTube, for example, provides a video suggestion tool that takes into account several of the same criteria used by Google's search engine. The purpose parallels that of Google.

> These algorithms are designed to serve you content that you're likely to click on, as that means the potential to sell more advertising alongside it. For example, YouTube's "up next" videos are statistically selected based on an unbelievably sophisticated analysis of what is most likely to keep a person hooked in. [. . .] the algorithms aren't there to optimize what is truthful or honest—but to optimize watch-time.[144]

[143] "92% of user traffic by Google occurs on the first page of results. In addition, 53% of the clicks from organic (unpaid) results guess from the first listed result. That is, Google's organic ranking has a lot of relevance for online traffic routing, even though no ad payments have occurred." Jessica Lee, "No. 1 Position in Google Gets 33% of Search Traffic [Study]," *Search Engine Watch*, June 20, 2013, https://searchenginewatch.com/sew/study/2276184/no-1-position-in-google-gets-33-of-search-traffic-study.
[144] Jamie Bartlett, *The People Vs Tech: How the Internet Is Killing Democracy (and How We Save It)* (London: Penguin Random House, 2018), 61.

According to Shoshana Zuboff, the startup culture of Silicon Valley also contributed to Google's shift from a search-engine-based business model to a surveillance capitalism business model after the dot-com bubble burst in 2001, which led to Google becoming the pioneer of this new model.[145] Therefore, it is essential to examine the technology market of application providers in order to understand how these companies performed and how they chose where and how to invest in research and development (R&D) in the 2000s, which, in turn, determined the actual services later offered to the market.

In Silicon Valley, even the accounting methods for assessing the market value of tech companies during the 1990s started to be questioned, which revealed irrational analyses of economic strategies throughout that decade.[146] Aggressive venture capital and the myth of the overnight millionaires in Silicon Valley would feed the rhetoric of high stakes in technological development. Millions were being poured into questionable companies with even more questionable ideas.[147] Zuboff argues that "the cult of the 'entrepreneur' would rise to near-mythic prominence as the perfect union of ownership and management, replacing the rich existential possibilities of the second modernity with a single glorified template of audacity, competitive cunning, dominance, and wealth."[148]

> Data-driven businesses are altering the frontiers of influence, by their ubiquity, scale and subtlety. In a world of digital assistants, pervasive social media, wearable devices and location-based marketing, this influence now stretches to our homes, our families, our bodies and our movements.[149]

[145] Zuboff, *Age of Surveillance Capitalism*, 63.
[146] "During the dot-com bubble of the 1990s, there was talk about traditional accounting and financial information losing its value relevance with respect to serving as a proxy for expected future cash flow. As a result, some called for changes in the way that accounting information was reported. Others argued that we were entering into a new economy period, and that non-accounting factors were more important in value estimation than traditional accounting measures [. . .] In fact, the Hi-Tech firms reflect a steeper decline in value relevance, followed by a sharper increase after the dot-com bubble burst. These results tend to support the argument that during the dot-com bubble period the market may have behaved in a less rational manner than it did previously or has since." John J. Morris and Pervaiz Alam, "Analysis of the Dot-Com Bubble of the 1990s," *SSRN* (June 27, 2008): 25, https://dx.doi.org/10.2139/ssrn.1152412.
[147] G. Thomas Goodnight and Sandy Green, "Rhetoric, Risk, and Markets: The Dot-Com Bubble," *Quarterly Journal of Speech* 96, no. 2 (2010): 115-140, https://doi.org/10.1080/00335631003796669. See also: Janet Rovenpor, "Explaining the E-Commerce Shakeout: Why Did So Many Internet-Based Businesses Fail?" *E - Service Journal* 3, no. 1 (Fall, 2003): 53-76, https://muse.jhu.edu/article/168671/summary; Bradford Cornell and Aswath Damodaran, "The Big Market Delusion: Valuation and Investment Implications," *Financial Analysts Journal* 76, no. 2 (2020): 15-25, https://doi.org/10.1080/0015198X.2020.1730655.
[148] Zuboff, 41.
[149] Katharine Kemp, "Concealed Data Practices and Competition Law: Why Privacy Matters," *European Competition Journal* 16, no 2–3 (November 5, 2020): 672, https://doi.org/10.1080/17441056.2020.1839228.

There is robust evidence that Google, firmly embedded in the startup culture of Silicon Valley, in which struggling businesses desperately needed venture capital and market confidence to survive, shifted its strategy in 2001 from a conservative and less profit-driven model to a reckless and more immediately predatory one.[150] Venture capital was not as available as before, and there was growing pressure from investors to provide quick returns and show that viable business models were being followed.[151]

According to Dan Senor and Saul Singer, "ever since the tech bubble had burst in 2000, venture capitalists were much less venturesome; no one wanted to spend tons of money up front, well before the first dollar of revenue showed up."[152] It seems a sort of starvation economy had hit Silicon Valley, a zero-sum game in which companies fought over revenue using predatory innovation in order to survive venture capital's demand for rapid profits from their investments.[153] Investments were not necessarily scarce, but competition between startups was fierce, and there was a sense of hunger for quick economic success. This phenomenon would later result in the survivors of this age engaging in predatory behaviors, leading to abusive practices, the stifling of competitors, and the rise of "tech trusts."[154]

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[150] For example, Google's Gmail, launched in 2004, scans private correspondence in order to better generate and direct advertising. Zuboff, *Age of Surveillance Capitalism,* 47, 73. Also, according to Bruce Schneier, "Internet companies can improve their product offerings to their actual customers by reducing user privacy. [...] Google has done much the same. In 2012, it announced a major change: Google would link its data about you from search, Gmail, YouTube (which Google owns), Google Plus, and so on into one large data set about you. Schneier, *Data and Goliath*, 59.

[151] "Impatient money is also reflected in the size of Silicon Valley startups, which during this period were significantly smaller than in other regions, employing an average of 68 employees as compared to an average of 112 in the rest of the country. This reflects an interest in quick returns without spending much time on growing a business or deepening its talent base, let alone developing the institutional capabilities that Joseph Schumpeter would have advised. These propensities were exacerbated by the larger Silicon Valley culture, where net worth was celebrated as the sole measure of success for valley parents and their children." Zuboff, 73.

[152] Senor and Singer, *Start-up Nation*, 26.

[153] Other sectors are also following a similar business mindset, trying to recover some of the losses produced by these innovative industries. Such is the case of telecommunication companies (internet service providers or ISPs): "This is the economic motivation behind the new law: ISPs want to join the profitable trade in personal data pioneered so successfully by online platforms like Google and Facebook. They want to mine your browsing history in order to build a detailed profile of your interests so they can sell you more services, sell you to advertisers with targeted ads, or sell your data outright to third-party marketing firms. Your ISP sees much more of your Internet traffic than a company like Google. As a result, the dataset they can develop about you is significantly more informative — and thus more valuable." Ben Tarnoff, "Socialize the Internet," *Jacobin Magazine*, April 4, 2017, https://jacobinmag.com/2017/04/internet-privacy-data-collection-trump-isps-fcc/.See also: Yannis Pierrakis and George Saridakis, "The Role of Venture Capitalists in the Regional Innovation Ecosystem: A Comparison of Networking Patterns between Private and Publicly Backed Venture Capital Funds," *The Journal of Technology Transfer* 44 (June 2019), 850–873, https://link.springer.com/article/10.1007/s10961-017-9622-8.

[154] Tim Wu, *The Curse of Bigness: Antitrust in the New Gilded Age* (New York: Columbia Global Reports, 2018), 123-124.

Though it is not my intention to propose a historical analysis of economic aspects in this work, it is worth highlighting the urgency aspect of these innovation cycles. Unlike the creative destruction model described by Joseph Schumpeter in the first half of the nineteenth century, these sorts of rapid market transformation and innovation cycles do not allow labor sources, competitors, investment structures, or governmental regulators to properly adapt.[155] Society, government, and the economy are required to play a continuous game of "catch-up" with front-runners without necessarily ever being able to properly grasp the nettle of the issue at hand.

Although Joseph Schumpeter's analysis was devised for a considerably different economic, social, and technological scenario, in addition to the fact that his fundamental principles are currently being revitalized and recontextualized by neo-Schumpeterian scholars to analyze such economic issues, this comparison between then and now is relevant because helps to give an account of the challenges faced by regulators at present. Moreover, it emphasizes the obstacles to the ideal governance of an ever-rapidly evolving market, such as the search engine market.

5 Google's Distinct Attributes: Ubiquity, Presumed Neutrality, and Market Power

5.1 Ubiquity

As a **ubiquitous** technology engaging in surveillance capitalism,[156] the concerns posed by the actions of Google's search engine toward relevant markets continue to increase. As stated before, the core business of Alphabet Inc. is also the foundation for several of the company's applications, which is derived from the same logic of extracting users' data in order to

[155] Joseph Alois Schumpeter, *Capitalism, Socialism, and Democracy*, 3rd ed. (London: Routledge, 2008).
[156] It should be mentioned that it is asserted that Google's market share is currently approaching 90%. This takes into account the Chinese market, in which Google is still prevented from operating. With more than half of China's 1 billion people online, its market represents one of the most important markets to conquer worldwide, and the company is making sure that it does. "Worldwide Desktop Market Share of Leading Search Engines from January 2010 to April 2020," Statista, accessed August 1, 2020, https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/

monetize its relationships with advertisers.[157] The omnipresence of Google for today's increasing number of internet users enables this homogenous business model to have global impacts.

Google was developing a search engine specifically designed for the Chinese market.[158] In order to follow the strict rules of the Great Firewall of China,[159] since 2017, the developers of Project Dragonfly had enabled the search engine to filter websites deemed unworthy of the People's Republic by the Communist Party. Among such websites are the BBC's and Wikipedia, for example. According to Siva Vaidhyanathan, "because of the nature of its relations with China, Google could not escape complicity with the repressive policies of the Chinese regime. [...] To do business there, it had to compromise its avowed commitment to providing access to everything by everybody."[160]

Due to backlashes, even from inside the company, the project was subjected to much criticism in 2018 since it was also being carried out somewhat clandestinely due to worries over accusations of human rights violations, especially with regard to freedom of expression and access to information.[161] Accordingly, Google's prominence in already-established online markets troubles observers not only in academia but in civil society in general and the private sector as well.[162]

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[157] It should be remembered that Google's search engine also currently provides spell check, voice recognition, calculation, language translation, speech recognition, visual processing, ranking, statistical modeling, and prediction, among other functions. Zuboff, *Age of Surveillance Capitalism*, 65.

[158] Sierra Zarek, "What Is Google's Project Dragonfly, and Why Is It So Concerning?" *Study Breaks*, December 7, 2018, https://studybreaks.com/tvfilm/what-is-googles-project-dragonfly-and-why-is-it-so-concerning/.

[159] This concept refers to an intangible wall surrounding Chinese users online, preventing them from accessing specific content online, particularly content that is considered politically sensitive or critical of the Communist Party or too lenient in its removal of user posts that are considered politically unacceptable. Tech companies that wish to enter and remain in the Chinese market must comply with their rules of censorship. See: Sung Wook Kim and Aziz Douai, "Google vs. China's 'Great Firewall': Ethical Implications for Free Speech and Sovereignty," *Technology in Society* 34, no. 2 (May 2012): 174-181, https://doi.org/10.1016/j.techsoc.2012.02.002.

[160] Siva Vaidhyanathan, *The Googlization of Everything (And Why We Should Worry)* (Los Angeles: University of California Press, 2011), 128.

[161] "Google's Project Dragonfly 'terminated' in China," Technology, *Pakistan & Gulf Economist*, July 22, 2019, https://www.pakistangulfeconomist.com/2019/07/22/technology-29-19/.

[162] "Given Google's meteoric rise to prominence and its current role as our primary online index, law should be vigilant. Google may enjoy substantial public goodwill, but what is best for Google will not always be what is best for society." Lastowka, "Google's Law," 1336.

5.2 Presumed Neutrality

The presumption of **neutrality** often held by users of Google's search engine increases the possible impacts of algorithmic bias when it comes to search results.[163] Since its users primarily assume that the search engine is synonymous with "research" and trust that its results are the best possible outputs that can be generated from their queries' inputs, Google can have a strong influence over users' everyday lives. If one acknowledges this ubiquity and market power that allows for abuse of dominance with few incentives to change, the putative neutrality of Google raises several concerns.[164]

In order to better define neutrality as a legal concept, it is possible to extract its meaning from other areas in which this discussion has been progressing for a longer time. For example, the concept of net neutrality involves **non-discrimination** by internet service providers toward content providers (message source), users (message destination), or the content itself (message).[165] Thus, neutrality is actually defined by its antonym, discrimination.

This reasoning can be expanded to other areas where neutrality is key.[166] For example, non-neutral algorithms would be discriminatory algorithms. However, discrimination can be at the core of some algorithmic business models, such as Google's. Discrimination is of the utmost importance to ranking results, determining relevance, and personalizing the outcomes of automated decision-making.

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[163] "Newspapers have always traded on outrage and sensationalism, because they've long known what algorithms have recently discovered about predilections. However, the difference is that newspapers are legally responsible for what they print, and citizens generally understand the editorial positions of various outlets. Algorithms, however, give the impression of being neutral and can't be held to account—even though the YouTube algorithm alone shapes what 1.5 billion users are likely to see." Bartlett, *The People Vs Tech,* 80. See also: Heleen L. Janssen, "An Approach for a Fundamental Rights Impact Assessment to Automated Decision-Making," *International Data Privacy Law* 10, no 1 (February 1, 2020): 82, https://doi.org/10.1093/idpl/ipz028. Kirsten Martin, "Ethical Implications and Accountability of Algorithms," *Journal of Business Ethics* 160, no 4 (December, 2019): 839, https://doi.org/10.1007/s10551-018-3921-3.

[164] Edward Iacobucci and Francesco Ducci, "The Google Search Case in Europe: Tying and the Single Monopoly Profit Theorem in Two-Sided Markets," *European Journal of Law and Economics* 47, no 1 (February 2019): 20, https://doi.org/10.1007/s10657-018-9602-y.

[165] Serge Abiteboul and Julia Stoyanovich, "Transparency, Fairness, Data Protection, Neutrality: Data Management Challenges in the Face of New Regulation," *Journal of Data and Information Quality*, ACM (2019): 3, https://hal.inria.fr/hal-02066516.

[166] "[N]ew forms of neutrality are emerging such as device neutrality (Is my smart-phone blocking certain apps and favoring others?), and platform neutrality (Is this particular web service providing neutral recommendation?). For instance, app stores like Google Play and the Apple App Store, tend to refuse to reference certain services, perhaps because they are competing with the company's own services." Abiteboul and Stoyanovich, 7.

Google needs to exercise some level of discrimination in order to perform well, and it would not be a stretch to affirm that it is precisely its discriminatory abilities, which have been perfected over decades, that make it so competitive as a business model.[167] Nonetheless, some discriminatory behaviors are unacceptable by law, such as "discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation."[168]

For this reason, this analysis does not aim to impose neutrality as an absolute value on algorithms. By definition, the ranking algorithm of a search engine needs to evaluate, determine importance, discriminate, and choose which results are more important than others. Instead of aiming for neutrality in all respects, it is precisely the investigation of where algorithms unlawfully lack neutrality (as an absolute concept) that is of interest when it comes to the problems raised by Google.

There is the risk of manipulation and bias.[169] A search engine perceived as neutral has the chance to significantly influence its users through its results, either by omitting certain results or highlighting others (through higher rankings on the results pages). Also, altering its design layout may cause consumer confusion concerning what is being commercially sponsored and what are the non-sponsored results.

There is also the possibility of constraints on freedom of communication and expression.[170] Application providers such as Google might decide to impede certain forms of speech from appearing high in the ranking of results or keep them from appearing in the results at all due to their nature, tone, and other characteristics contrary to the standards of "appropriateness," whether they be political or cultural.[171] Also, due to an increasing quest for

[167] Catherine Stinson, "Algorithms Are Not Neutral: Bias in Collaborative Filtering," *arXiv:2105.01031* (May 2021), https://arxiv.org/abs/2105.01031.
[168] Article 21. Charter of Fundamental Rights of the European Union, 2012, O.J. 2012/C 326/02, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12012P/TXT&from=EN#d1e364-393-1.
[169] Florian Saurwein, Natascha Just, and Michael Latzer, "Governance of Algorithms: Options and Limitations," *Info* 17, nº 6 (September 2015): 37, https://doi.org/10.1108/info-05-2015-0025. Regarding bias Joanna Mazur contends: "Allowing artificial intelligence to analyse the discriminatory present, in order to make automated decisions that determine the future, causes the impression of objectiveness. Lack of human input into this process could be perceived as a tool for making it fairer. However, one should not forget who provides data and tools for analysis." Joanna Mazur, "Right to Access Information as a Collective-Based Approach to the GDPR's Right to Explanation in European Law," *Erasmus Law Review* 11, no. 3 (December 2018): 179-180, https://ssrn.com/abstract=3356770.
[170] Saurwein, Just, and Latzer, 37.
[171] This matter of ranking prominence was tackled in the European Commission's decision on the Google Shopping Case, which will be discussed in further detail in Chapter 3. "The Commission's decision refers to the inducement effect of higher rankings or of adding images, prices and merchant information to product search

intermediate liability in online content nowadays, with concerns regarding fake news and hate speech online, the search engine might be overzealous in the removal of content from results in order to avoid liability in the future.

5.3 Market Power

The concept of market power is especially relevant for this analysis and will be further explored within the context of competition, in chapter 3. However, it is worth establishing a legal definition of this concept before attributing it to Google with regard to the online search business. Market power is not illegal per se, but its abuse and anti-competitive practices stemming from the privileges inherent to a dominant position in a relevant market are.[172] Therefore, to analyze the abuse of power and abusive practices, it is important to determine which market is being considered. Such was the purpose of this chapter's description of Google Search's business model.

The European Commission Notice on the definition of relevant market for the purposes of Community competition law defines a **relevant market** according to two main dimensions: product and geographic. A relevant product market refers to a set of products and services that are interchangeable or substitutable by consumers due to their characteristics. A relevant geographic market refers to an area in which conditions for supply and demand of certain products or services are relatively homogenous and distinguishable from other areas.[173]

According to a European Commission staff working document published on 12 July 2021, a re-evaluation of the Market Definition Notice used in EU competition law indicated

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that result in increases of traffic, as confirmed by eye-tracking studies and similar research on the impact on user behaviour and click-through rates. As the Commission concludes, citing Google's own submissions, the rationale for higher rankings and inducement to click is to 'dramatically increase traffic' by leveraging 'universal search initiatives' to 'drive the bulk of increase in traffic to Google's comparison shopping service'. A form of user-inertia similar to the one identified in Microsoft case seems to be particularly at play for the first three to five generic search results and for results displayed with richer graphic features, which seem to have a major impact on the click rates of a link, irrespective of the relevance of the underlying page." Iacobucci and Ducci, "Google Search Case in Europe," 29-30.

[172] Articles 101 and 102. Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12012E/TXT&from=EN.

[173] Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law (EU), 1997 O.J. (97/C 372 /03), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997Y1209(01)&from=EN.

that "the role of market definition and its basic principles have remained largely unchanged since 1997 and have been confirmed in large part in judgments of the EU Courts."[174]

There are concerns regarding the abuse of Google's **market power**.[175] Since Google currently holds almost 90% of the search engine market share worldwide and more than 93% in Europe,[176] it could, fueled by the possibility of favoring its own affiliate applications in query results,[177] abuse its dominance through monopolistic practices, stifling consumer choice and reducing competitiveness in other sectors.[178]

Additionally, there is an issue regarding business-to-business relations on the platform, as well as a lack of possibilities to compete.[179] Due to its business model being geared toward generating revenue through advertisements and its own applications, there is little incentive to rank other direct or secondary competitors high in the search engine's results without the competitors sponsoring ads. It is extremely important to businesses' relevance nowadays to be well ranked in Google search query results. If the criteria used by Google to rank one company higher than another is not transparent and in accordance with users' expectations, this may lead to infringements on users' freedom to conduct business online. One example of a possible way such infringements could be committed would be setting the parameters of the PageRank algorithm to divert users' traffic away from competitors in unfair ways.

If we consider Lawrence Lessig's idea of (computer) code producing "law" in the sense of shaping and steering societal behavior, one can assume that algorithms also can shape and steer decision-making processes in the steadily growing online pool of internet users.[180] Particularly in the case of Google, on account of its ubiquity, market power, and seeming neutrality, this is especially true. By influencing consumers' behavior through the

[174] Commission Staff Working Document, "Evaluation of the Commission Notice on the Definition of Relevant Market for the Purposes of the Community Competition Law of 9 December 1997," (July 12, 2021), at 67, https://ec.europa.eu/competition-policy/system/files/2021-07/evaluation_market-definition-notice_en.pdf.
[175] Saurwein, Just, and Latzer, "Governance of Algorithms," 37. See also: Iacobucci and Ducci, "Google Search Case in Europe," 20-21.
[176] "Search Engine Market Share Europe," StatCounter Global Stats, accessed December 1, 2020, https://gs.statcounter.com/search-engine-market-share/all/europe.
[177] Case AT.39740, Google Search (Shopping), 2017 E.C.
[178] "The battle against the accumulation of data operated by PageRank reminds the social struggles against the traditional forms of monopoly and accumulation of capitals. PageRank is to the internet, as primitive accumulation and rent are to early capitalism." Pasquinelli, "Google's PageRank," 12.
[179] Saurwein, Just, and Latzer, 37.
[180] Mireille Hildebrandt, "Code Driven Law: Freezing the Future and Scaling the Past," in *Is Law Computable?: Critical Perspectives on Law and Artificial Intelligence*, ed. Christopher Markou and Simon Deakin (United Kingdom: Hart Publishers, 2020), 67-84.

direction of online traffic to specific political content or granting of access to particular information (instead of other information that may be purposefully excluded from its results), Google's search engine can actually precipitate certain behaviors in the same way social norms, nature, and the market do.[181] Thus, the theory that "code is law" has its merits.

The main conclusion to be drawn from all this is that these concerns call attention to a lack of **transparency** surrounding Google's search platform. The various acceptations of the concept of transparency will be further explored throughout this thesis (especially in the following chapter), but, in brief, it can be considered in relation to: the end-user of Google's search engine, the one who performs the search; the business user who wishes to see its content (website, blog, service, product, etc.) displayed and well-ranked on the result page; and regulators in a broad sense, which encompasses competition and data protection authorities, magistrates, superior courts, and members of legislative branches of government.

Due to a series of contextual circumstances surrounding the conception of Google's business model, the search engine was created and developed in a manner that was highly dependent on users' personal data, less prone to regulation, and extremely fierce toward its competitors. Over the years, this business strategy has continued to be employed and perfected, in addition to being appropriated by other tech giants, establishing surveillance capitalism as a standard practice.

Nonetheless, the issues at hand have led to a growing predicament with regard to the unique convergence of issues surrounding this platform. Users, businesses, and governmental bodies alike have a significant stake in the regulation of the mechanism essential to its operations: the algorithm. Therefore, Google's search engine, with its unique model of behavioral surplus exploitation, must adhere to better accountability and transparency standards in order to meet the expectations of its users (both individuals and businesses).

[181] Manoel Horta Ribeiro et al., "Auditing Radicalization Pathways on YouTube," arXiv, August 22, 2019, http://arxiv.org/abs/1908.08313.

6 Underlying Tensions Online: Technical Challenges to Scrutinizing Google

Broadly speaking, one may contend that there is a tendency for the importance of behavioral data to grow even more over the next years and decades. We are now experiencing the rapid rise of the Internet of Things (IoT), which connects what are becoming everyday objects to the internet and provides for the digitalization of even the most mundane human experiences. Such objects vary from the power usage meter of a smart home to smart watches and other wearables for biometric monitoring.[182] There has even been a transformation of the way IP numbers are assigned in order to expand the possibility to track and monitor the activity of each single device and, therefore, the data each produces.[183]

This overflow of data into the digital economy also feeds the artificial intelligences behind automated systems, most of them proprietary. Companies collect, process, and create value out of data, especially to feed predictive models for advertisers and consumers. "Pattern recognition is the name of the game—connecting the dots of past behavior to predict the future."[184]

Another interesting fact is that the data processor is not always the data collector. Since consent, legitimate interest, and other legal bases are generally understood as the requirements for the processing of data, users may be startled to find out about the cross-referencing of data between original collectors and data brokers or even between different applications of the same company.[185] Alphabet Inc. invests its efforts into numerous services, but an important asset is the large number of users (and, therefore, their data) of the services offered by their core businesses, like Google Search, Gmail, and YouTube.

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[182] It is worth remembering that "every smart product repeats our essential questions: What does a smart product know, and whom does it tell?" Zuboff, *Age of Surveillance Capitalism*, 238. See also: Catherine Gordley, "The EU Commission Clears Subject to Conditions the Acquisition of a Healthcare Devices Manufacturer by a US Tech Giant *(Fitbit / Google)*," *Concurrences*, December 17, 2020, https://www.concurrences.com/fr/bulletin/news-issues/december-2020/the-eu-commission-clears-subject-to-conditions-the-acquisition-of-a-healthcare.

[183] Nowadays, a world-wide transition from IPv4 to IPv6 is ongoing, in order to create a substantially larger number of IP (Internet Protocol) numbers to devices that go way beyond personal computers and mobile phones. The greater the identification possibilities of each single device, the greater the potential of datafication of everyday transactions online.

[184] Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (Cambridge: Harvard University Press, 2015), 20. See also: Bilel Benbouzid, "Values and Consequences in Predictive Machine Evaluation. A Sociology of Predictive Policing," *Science & Technology Studies* 32, no. 4 (2019): 123-124, https://sciencetechnologystudies.journal.fi/article/view/66156.

[185] Pasquale, 32.

Unbeknownst to most users, a combination of different data sources might be what determines the logic behind the profiling activities of certain algorithmic decisions.[186]

Since "behavioral surplus was necessary for revenue, and secrecy would be necessary for the sustained accumulation of behavioral surplus,"[187] the reasoning that directs this processing of data would also remain, for the most part, protected by **black boxes** sustained by the justification of safeguarding trade secrets.[188] Unaware of how their data is being processed, as this is obscured by the rationale of trade secrets, users remain oblivious to how decisions are being made for them in crucial areas, such as insurance, finance, employment, credit-scoring, policing, and criminal justice, among other vital fields that can profoundly impact their lives.[189]

The case of Google Street View in Germany and other European countries is remarkable and exemplifies this issue. After an audit by the German data protection authority, Google admitted it had "been accidentally gathering extracts of personal web activity from domestic wifi networks through the Street View cars it has used since 2007."[190] Moreover, the company's automobiles were equipped with antennas that scanned and analyzed wifi networks throughout the routes they traveled, collecting information. There was no consent for such data collection nor any apparent legitimate interest that justified a street mapping service engaging in this activity.

These circumstances preceded the General Data Protection Regulation, but they perfectly highlight Google's lack of consent and the lack of legitimate interest to collect and

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[186] The Article 29 Data Protection Working Party highlights the statistical deduction nature of profiling and defines it according to three essential elements: "[I]t has to be an automated form of processing; it has to be carried out on personal data; and the objective of the profiling must be to evaluate personal aspects about a natural person." Therefore, profiling involves a higher legal threshold rather than a simple classification of data subjects. Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679" (WP251rev.01, 3 October, 2017), at 6-7, https://ec.europa.eu/newsroom/article29/item-detail.cfm?item_id=612053. See also: Oostveen and Irion, "Golden Age of Personal Data," 16; Moritz Büchi et al., "The Chilling Effects of Algorithmic Profiling: Mapping the Issues," *Computer Law & Security Review* 36 (April 2020): 2, https://doi.org/10.1016/j.clsr.2019.105367.

[187] Zuboff, *Age of Surveillance Capitalism*, 88.

[188] Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York: Crown Publishers, 2016), 173. See also: Schneier, *Data and Goliath*, 230; Guidotti et al., "Survey of Methods," 10.

[189] "An algorithm processes a slew of statistics and comes up with a probability that a certain person *might* be a bad hire, a risky borrower, a terrorist, or a miserable teacher. That probability is distilled into a score, which can turn someone's life upside down. And yet when the person fights back, 'suggestive' countervailing evidence simply won't cut it. The case must be ironclad. The human victims of WMDs [Weapons of Math Destruction], we'll see time and again, are held to a far higher standard of evidence than the algorithms themselves." O'Neil, 10. See also: Gary Smith, "Be Wary of Black-Box Trading Algorithms," *The Journal of Investing* 28, no 5 (July 31, 2019): 7–15, https://doi.org/10.3905/joi.2019.1.090.

[190] Jemima Kiss, "Google Admits Collecting Wi-Fi Data through Street View Cars," *The Guardian*, May 15, 2010, http://www.theguardian.com/technology/2010/may/15/google-admits-storing-private-data.

presumably process data from unencrypted wifi networks found along the routes its cars were mapping.[191] The extraction of data was blamed on a rogue technician from Google, who had apparently inserted new pieces of algorithm into the Google Street View mapping program. Regardless of the institution's responsibility for the deeds of its employees, this was only discovered due to people and institutions with technical skills investigating the activities of such devices, because ordinary citizens would have no means of knowing any of this. There was also no expectation of a lack of wifi network privacy for someone at home using their domestic network, who, in many cases, would not even see the cars go by on the street. Should trade secrets also protect the algorithms performing unauthorized domestic surveillance of our homes?

To help address this question, it is worth inquiring into the purported technical challenges to scrutinizing an algorithm.[192] The rendering of data collected from users into something useful, and not just the data in and of itself, is what comprises the function of the algorithm. These probability calculations,[193]as well as profiling and pattern recognition, inform the decisions of platforms, and are directly related to how efficient, user-friendly, and potent the platforms are perceived to be. According to Cathy O'Neil, this is a feature of digital platforms that steers them both towards secrecy and competitiveness.

> And yet many companies go out of their way to hide results of their models or even their existence. One common justification is that the algorithm constitutes a "secret sauce" crucial to their business. It's *intellectual property*, and it must be defended, if need be, with legions of lawyers and lobbyists. In the case of web giants like Google, Amazon and Facebook, these precisely tailored algorithms alone are worth hundreds of billions of dollars. WMD [Weapons of Math Destruction] are, by design, inscrutable black boxes. That makes it extra hard to definitively answer the second question: Does the model work against the subject's interest? In short, is it unfair? Does it damage or destroy lives?[194]

[191] See also: Wanda Presthus and Hanne Sørum, "Consumer Perspectives on Information Privacy Following the Implementation of the GDPR," *International Journal of Information Systems and Project Management* 7, no.3 (2019): 19–34, https://doi.org/10.12821/ijispm070302.

[192] Emre Bayamlıoğlu, "The Right to Contest Automated Decisions under the General Data Protection Regulation: Beyond the So−called 'Right to Explanation'," *Regulation & Governance* (March 14, 2021): 15, https://doi.org/10.1111/rego.12391.

[193] Automated decisions consist of a statistical calculation of probability. Depending on certain criteria previously set by algorithm designers, data subjects can be classified into different categories. The more data there is on a subject, the more likely it is for him or her to be adequately classified.

[194] Note that Cathy O'Neil, an American data scientist and author, treats trade secrets as equivalent to an intellectual property right, which is a concept in dispute. This also has to do with her American practical background and research, a jurisdiction in which the tradition of intellectual property rights assumes a usually excessively protective stance of the right of owners, encompassing a myriad of IP categories to inhibit infringement and protect service providers. Even from a competition standpoint, American authorities such as the Federal Trade Commission are frequently more lenient to companies that ensure lower prices to consumers. O'Neil, *Weapons of Math Destruction*, 29.

In the case of Google, without knowing what it "actually *does* when it ranks sites, we cannot assess when it is acting in good faith to help users, and when it is biasing results to favor its own commercial interests."[195] As will be further explored in chapter 3, due to the fact that it acts both as a marketplace and a competitor in horizontal and vertical searches, respectively, it tellingly avoids scrutiny of its algorithm in order to protect its business model. In this way, Google also evades legal inquiries of potential biases, unfair competition strategies, and predatory behavior.

It is important to understand that biases and errors are not just technical problems or things that can be solely managed by means of simple adjustments to the code. Some of these predictive models rely upon choices about what data is used and what is not.[196] These decisions also imbue algorithms with mathematicians' and computer coders' biases, prejudices, priorities, judgments, and misunderstandings. Not rarely, these human elements are passed onto algorithms, perpetuate injustices, and define people's realities in significant ways. Hence, this issue also happens to be a matter of justice, fairness, and morality. Possible solutions will neither be only technical nor solely practical. They will have to take into consideration a legal balancing of rights, a juxtaposition of values, and a counterweighing of political forces.

Regardless, it is indisputable that "Google imposes algorithmic penalties on legitimate websites that compete with Google's services—particularly 'vertical search' sites. By giving preference to its own products in the search ranking, Google is able to dominate markets in which there are many popular, and in turn presumably many more relevant, competitors and industry leaders."[197] This gives rise to claims challenging the algorithm's supposed immunity to scrutiny.

[195] Pasquale, *Black Box Society*, 9.

[196] O'Neil, *Weapons of Math Destruction*, 3, 218. See also: Inge Graef, "Blurring Boundaries of Consumer Welfare: How to Create Synergies Between Competition, Consumer and Data Protection Law in Digital Markets," in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 131, https://doi.org/10.1007/978-3-662-57646-5.

[197] Joshua G. Hazan, "Stop Being Evil: A Proposal for Unbiased Google Search," *Michigan Law Review* 111, no 5 (March 2013): 796-797, https://repository.law.umich.edu/mlr/vol111/iss5/5.

7 Current State of Protection of the Trade Secrets of Algorithmic-Based Businesses

First of all, there is not just one single way of protecting computer programs by law. Different jurisdictions may have various solutions to this matter. However, it is very common nowadays that companies choose a combination of **trade secrets**, which is an intangible right that stems from competition theory, in addition to either copyright or patent protections, which are intellectual property rights *per se*.

Usually, the interface of computer programs, which are more accessible and visible to the user, is covered by **copyright** or a **patent**, which are mechanisms that provide greater protection where reverse engineering and interoperability requirements are common.[198] This choice also may also involve consideration of patent protection of an algorithm, which can be more extensive with regard to the object, depending on the jurisdiction, say the United States, for instance.[199]

Another type of right involved in business models that are based on computer processing is **database rights**. According to Directive 96/9/EC, a database consists of "a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means."[200] Very similar to the logic of copyrights, database rights encompass the concept of authorship and a limited timeframe for protection of exclusive use.

Although a variety of intellectual assets can overlap in legal strategies of algorithmic business models, including intellectual property and *sui generis* rights such as database rights, the present thesis is focused on the aspects related to the trade secret protection of algorithms performing automated decisions. Therefore, though many layers of legal

[198] Sylvia Lu, "Algorithmic Opacity, Private Accountability, and Corporate Social Disclosure in the Age of Artificial Intelligence," *Vanderbilt Journal of Entertainment & Technology Law* 23, no. 1 (Fall 2020): 117, https://scholarship.law.vanderbilt.edu/jetlaw/vol23/iss1/3.

[199] According to Article 8 of the Directive 2009/24/EC: "The provisions of this Directive shall be without prejudice to any other legal provisions such as those concerning patent rights, trade-marks, unfair competition, trade secrets, protection of semi-conductor products or the law of contract." This allows for additional intellectual property protection to computer programs' functionalities, not just copyright, or at least a systematic interpretation of those rights within the intellectual property protection realm of possibilities. Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the Legal Protection of Computer Programs (Codified Version) (Text with EEA Relevance), 2009 O.J. (L 111), art. 8, http://data.europa.eu/eli/dir/2009/24/oj/eng.

[200] Article 1.2. Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31996L0009.

protection can shield the different processes of a company, the black box surrounding the performance of algorithms is of particular interest in a systemic approach, as explained in the introductory and methodological sections.

There is also a distinction between algorithms and the source code of computer programs, which is of the utmost importance for our analysis, considering it reveals the reasons why copyright does not provide enough protection in the tech industry.[201] A **source code** is the tangible support by which an algorithm performs its task. According to Directive 2009/24/CE, Recital 11, algorithms resemble programming languages in the logic through which ideas are expressed (computer codes).

> For the avoidance of doubt, it has to be made clear that only the expression of a computer program is protected and that ideas and principles which underlie any element of a program, including those which underlie its interfaces, are not protected by copyright under this Directive. In accordance with this principle of copyright, to the extent that logic, algorithms and programming languages comprise ideas and principles, those ideas and principles are not protected under this Directive. In accordance with the legislation and case-law of the Member States and the international copyright conventions, the expression of those ideas and principles is to be protected by copyright.[202]

The ideas and logic behind an algorithm are not subject to copyright protection, unlike the actual form by which they are expressed (sequence of codes). Thus, if a creator of an algorithm were to protect its creation only through copyright, competitors would be able to base new creations on the underlying ideas and methods of the original, as long as they expressed it in a different way (original code). It is for this reason that trade secrets then become a more advantageous way of protecting the property of the algorithms' creators.

Trade secrets, however, tend to be used to protect "deeper" parts of the provision of software, where it is possible to maintain control of the rationale behind input to output transformation. According to Article 2(1) of the EU's Directive 2016/943, regarding the protection of undisclosed know-how and business information, trade secrets are defined as follows:

> "[T]rade secret" means information which meets all of the following requirements: a) it is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question; b) it has commercial value because it is secret; c) it has been subject to

[201] Frédéric Marty, "La protection des algorithmes par le secret des affaires: Entre risques de faux négatifs et risques de faux positifs," *Revue internationale de droit économique* t.XXXIII, no 2 (2019): 222, https://doi.org/10.3917/ride.332.0211.
[202] Recital 11. Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009.

> reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.[203]

Since there is some room for state-by-state interpretation of directives in the European Union, a broad analysis of the practical implementation of the Trade Secrets Directive reveals that it is used to provide legal protection to many types of information: "technical or non-technical data, patterns, compilations, programs, devices, methods, techniques, financial data, customer lists, or supplies that have economic value."[204]

There are also significant procedural differences between cases discussing trade secrets and intellectual property rights. While the European Union provides specific pre-litigation evidence collection provisions under the Intellectual Property Enforcement Directive,[205] for example, such provisions have been purposefully avoided by legislators when regulating the protection of trade secrets in the Union.[206]

It is particularly interesting to observe the actual wording of the Trade Secrets Directive, since it distinctively separates trade secrets from intellectual property. Recitals 1 and 2 of Directive 2016/943 refer to trade secrets as "intellectual capital" and as an alternative to a list of intellectual property rights.

> Recital 1: This investment in generating and applying *intellectual capital* is a determining factor as regards their competitiveness and innovation-related performance in the market and therefore their returns on investment, which is the underlying motivation for business research and development. Businesses have recourse to different means to appropriate the results of their innovation-related activities when openness does not allow for the full exploitation of their investment in research and innovation. Use of intellectual property rights, such as patents, design rights or copyright, is one such means.
>
> Recital 2: By protecting such a wide range of know-how and business information, whether as a complement or as *an alternative to intellectual property rights*, trade secrets allow creators and innovators to derive profit from their creation or

[203] Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) against Their Unlawful Acquisition, Use and Disclosure (Text with EEA Relevance), 2016 O.J. (L 157), art. 2.1, http://data.europa.eu/eli/dir/2016/943/oj/eng.
[204] Shreya Desai, "Shhh - It's a Secret: A Comparison of the United States Defend Trade Secrets Act and European Union Trade Secrets Directive," *Georgia Journal of International and Comparative Law* 46, no. 2, (2018): 490, https://digitalcommons.law.uga.edu/gjicl/vol46/iss2/7/. See also: Davide Arcidiacono, "The Trade Secrets Directive in the International Legal Framework," *European Papers* 1, no. 3 (November 7, 2016): 1073-1085, https://www.europeanpapers.eu/en/europeanforum/trade-secrets-directive-international-legal-framework.
[205] Corrigendum to Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the Enforcement of Intellectual Property Rights, 2004, O.J. (L 157), https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32004L0048R(01)&from=EN.
[206] Rembert Niebel, Lorenzo de Martinis, and Birgit Clark, "The EU Trade Secrets Directive: All Change for Trade Secret Protection in Europe?" *Journal of Intellectual Property Law & Practice* 13, no. 6 (June 2018): 447, https://doi.org/10.1093/jiplp/jpx227.

> innovation and, therefore, are particularly important for business competitiveness as well as for research and development, and innovation-related performance.[207]

Therefore, a noticeable distinction is drawn between trade secrets and intellectual property rights. How the rights of trade secret owners and the rights of users (individuals and business owners) conflict will be examined in detail in subsequent chapters, which will have an impact on the understanding of how to achieve a fair balancing of fundamental rights and, consequently, on the right to explanation of such algorithmic trade secrets. For our current focus, it is important to recognize that, internationally and within the European Union, the matter of trade secrets is treated in a parallel manner as intellectual property rights. Recital 39 of the Trade Secrets Directive makes it clear that there is a legal distinction between them.

> Recital 39: This Directive should not affect the application of any other relevant law in other areas, including intellectual property rights and the law of contract. However, where the scope of application of Directive 2004/48/EC of the European Parliament and of the Council and the scope of this Directive overlap, this Directive takes precedence as lex specialis.[208]

It should be noted that this directive also establishes that member states of the EU are still allowed to apply rules that require disclosures to either the public or to public authorities, if necessary.[209] Moreover, other limitations are set in Article 9 of the same statute regarding the confidentiality of trade secrets during the course of judicial proceedings. These limitations provide an additional layer of protection for companies when providing documents and testimonies to hearings regarding such competitive assets and even provide for the possibility of a confidential version of the decision to be rendered as an exceptional measure to protect trade secrets.[210]

> The entire framework of the law of access to government proceedings and records is intended to ensure that information critical to public debate and oversight is

[207] Recitals 1 and 2. Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 (my italics).
[208] Recital 39. Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016.
[209] Recital 11. Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016.
[210] Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016, art. 9. With regard to this matter: "In an atmosphere of increasing automation and privatization, these cases pit proprietary interests in trade secrecy against individual interests in transparency. Faced with demands for more transparency, courts and litigants have sometimes reached an apparent compromise: protective orders, coupled with nondisclosure orders, that permit disclosure to the parties while preventing disclosure to the general public." Hannah Bloch-Wehba, "Access to Algorithms," *Fordham Law Review* 88, no. 4 (March 2020): 1308, https://ir.lawnet.fordham.edu/flr/vol88/iss4/2/. See also: Joanna Mazur, "Right to Access Information as a Collective-Based Approach to the GDPR's Right to Explanation in European Law," *Erasmus Law Review* 11, no. 3 (December 2018): 179, https://ssrn.com/abstract=3356770.

> available to all, not just to a few. When information is sufficiently important to be disclosed to individuals, making that disclosure contingent on a broader silence makes clear that the compromise in fact comes at a significant cost to the public interest.[211]

The fact that trade secrets are required to meet minimum bureaucratic standards or none at all (such as administrative registration), contrary to patents and copyright, for instance, makes them an interesting option for companies that follow flexible business models with rapidly-adaptable characteristics similar to Google's business model. For this reason, startups and companies seeking to protect proprietary algorithms often opt to protect them under the banner of trade secrets.[212] Nonetheless, these same attributes of trade secrets may also allow them to perpetuate and exacerbate "existing discriminatory social structures when these systems go unchecked and unregulated."[213]

Unlike other intangible intellectual rights, **the right to trade secrets does not require public disclosure of the object of protection**.[214] Pointing this out may seem like a tautology, but it is relevant to grasp the effects it may have on digital innovation. Since the object of trade secret protection will not be eventually available to society after a period of time (most importantly, to competitors, which is the case with patents), this creates greater barriers to entry to newcomers in specific markets and, thus, less competition in the medium to long term.[215] Other intangible intellectual rights, such as intellectual property rights, enjoy somewhat limited protection in terms of time (expiration of patents, for example), scope (jurisdiction), and object (some are specifically excluded from intellectual property protection).[216]

> The disclosure requirements of patent law promoted transparency by making intellectual property protection conditional on publicly inspectable, written descriptions of claims. In time, however, this relatively open approach was neglected; knowledgeable but unscrupulous individuals learned how to game

[211] Bloch-Wehba, "Access to Algorithms," 1311.
[212] Taylor R. Moore, *Trade Secrets and Algorithms as Barriers to Social Justice*, Center for Democracy & Technology, August 3, 2017, 6, https://cdt.org/wp-content/uploads/2017/08/2017-07-31-Trade-Secret-Algorithms-as-Barriers-to-Social-Justice.pdf.
[213] Moore, *Trade Secrets and Algorithms*, 6.
[214] "While patents provide a monopoly over novel inventions, patent protection comes with the price of public disclosure. Trade secrets on the other hand do not provide an exclusive intellectual property right, but they can potentially extend indefinitely provided they are not involuntarily disclosed. This could be an advantage over intellectual property rights which last only for a specific term or duration." Niebel, Martinis, and Clark, "The EU Trade Secrets Directive," 447.
[215] Marty, "La protection des algorithmes," 217. See also: Kemp, "Concealed Data Practices," 658-659.
[216] Camilla A. Hrdy and Mark A. Lemley, "Abandoning Trade Secrets," *Stanford Law Review* 73, no. 1 (January 2021): 10-11, https://review.law.stanford.edu/wp-content/uploads/sites/3/2021/01/Hrdy-Lemley-73-Stan.-L.-Rev.-1.pdf.

> exposed systems, and the profit advantage of informational exclusivity was too strong to resist.[217]

Furthermore, companies that envisage worldwide provision of services, which is the case with GAFA (Google, Apple, Facebook, and Amazon), for instance, do not wish to be bound by local jurisdictional, temporal, or object scope. These legal hurdles increase the cost of doing business, especially opportunity costs, i.e., the costs of losing opportunities to launch new products.[218] Thus, trade secrets become an appealing option in the digital realm.

> On a global scale, the Amazon recommendation system, the Instagram algorithm for publication diffusion or Google's search algorithms are among the most well-known examples of trade secrets. [...] Google's precise modalities to determine the relationships between pages, the optimisations built into the search system and the parameters used to detect such manipulations are not revealed. For example, it is unknown how different criteria are weighted, such as the number of links, the traffic on the pages or the structure of the pages' source code.[219]

If we systematically interpret these provisions with article 23(1)(i) of the GDPR, one can see that restrictions to data controllers and processors' rights apply "when such a restriction respects the essence of the fundamental rights and freedoms and is a necessary and proportionate measure in a democratic society to safeguard the protection of the data subject or the rights and freedoms of others."[220] Thus, limitations to intangible intellectual assets such as trade secrets may be not only possible but also necessary in order to safeguard users' fundamental rights.[221]

There are also important consequences to differentiating trade secrets from intellectual property through the lenses of proprietary rights guaranteed on the continent.[222] Considering these legal protections as having equivalent status could give rise to an absolute

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[217] Pasquale, *Black Box Society*, 193.
[218] Dan Jerker B. Svantesson, *Solving the Internet Jurisdiction Puzzle* (Oxford: Oxford University Press, 2017), 65, 109, 117, https://doi.org/10.1093/oso/9780198795674.001.0001.
[219] Maja Brkan and Grégory Bonnet, "Legal and Technical Feasibility of the GDPR's Quest for Explanation of Algorithmic Decisions: Of Black Boxes, White Boxes and Fata Morganas," *European Journal of Risk Regulation* 11, no 1 (March 2020): 40, https://doi.org/10.1017/err.2020.10.
[220] 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) (Text with EEA Relevance), 2016 O.J. (L *119*), http://data.europa.eu/eli/reg/2016/679/oj/eng.
[221] Ideally, this is a theoretical and legal framework applied through casuistry, not necessarily a hierarchical structure of data protection rights over algorithmic intellectual assets. According to Brkan and Bonnet: "[I]f GDPR always prevailed over trade secrets, the latter could never be protected when providing an explanation of an algorithmic decision to the data subject." Brkan and Bonnet, "Legal and Technical Feasibility," 40.
[222] Jonas Heitto, "The Trade Secret Directive Proposal and the Narrow Path to Improving Trade Secret Protection in Europe," *Computer Law Review International* 16, no. 5 (2015): 141, https://www.degruyter.com/document/doi/10.9785/cri-2015-0504/html.

right to trade secrets, by means of the European Convention on Human Rights, under the right to the peaceful enjoyment of possessions.[223]

Furthermore, in the context of the European Union, which is the primary jurisdictional framework examined in this thesis, trade secrets are intimately connected to the principle of competition. Even its definition is relational, since the element of market value, a requirement for its characterization, is extracted precisely from a competitive advantage.[224] Frédéric Marty defines it as "information known by a restricted number of people, with commercial value, effective or potential, due to its secretive character and that is subject to reasonable measures of protection to maintain its secretive character" (my translation).[225]

If it were the case that competitors obtained the information subject to protection by legitimate methods, such as technological advancements, research & development, or reverse engineering, there would be no issue at hand. However, what is considered illicit are anti-competitive practices, such as unlawful disclosure by former employees or business espionage.[226]

Both these situations are foreseen by articles 3 and 4 of the EU directive on the protection of trade secrets.[227] It defines lawful acquisition as that achieved by means of independent discovery, creation, observation, study, and reverse engineering, among other means.[228] Additionally, it defines as unlawful any use or disclosure derived from unauthorized access, misappropriation, illegal commercial practices, or a breach of confidentiality.

Thus, **unfair competition** is a primary concern with regard to this category of intangible business assets and must be considered as a factor of analysis. Though this be the case, however, how does one compete and innovate in markets based on algorithmic business models? Intellectual property, such as patents and copyrights, are usually characterized by incremental innovations in their respective markets, whereas a scenario widely based on trade secrets requires that competitors invest a similar amount of resources into research and development (which can be quite significant in the tech industry) in order to attempt to

[223] Article 1. Protocol to the Convention for the Protection of Human Rights and Fundamental Freedoms https://www.echr.coe.int/Pages/home.aspx?p=basictexts&c=.
[224] Hrdy and Lemley, "Abandoning Trade Secrets," 31-32. See also: Francesco Banterle, "The Interface Between Data Protection and IP Law: The Case of Trade Secrets and the Database *Sui Generis* Right in Marketing Operations, and the Ownership of Raw Data in Big Data Analysis," in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 420, https://doi.org/10.1007/978-3-662-57646-5.
[225] Marty, "La protection des algorithmes," 214.
[226] Marty, 215.
[227] Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016.
[228] Guidotti et al., "Survey of Methods," 10-11.

compete. "Unlike all other forms of intellectual property, trade-secret law allows owners to suppress knowledge."[229]

As a result, the tendency of these markets is for newcomers to attempt to compete not against the holders of dominant positions, but to complement their products and services, which, in turn, reinforces the established companies' dominance in the primary market.[230] Hence, trade secrets tend to stifle competition in primary markets, which may not be ideal for markets, depending on the objectives one considers in regulating competition. Its negative externalities might outweigh its positive ones, strengthening oligopolies, for example.

Once again, focusing on the case study which is the object of this analysis, Google Search, it is important to note that the putative neutrality of its results page is, in fact, also a product of a business model that relies on secrecy in order to thrive.[231] An erroneous assumption by the public, although widespread among its users, is that Google's results are objective and naturally follow the keywords queried. However, this perception actually stems from a highly effective personalization algorithm, as we have seen, and from the company's savvy strategy to characterize its business model as exempt from scrutiny:

> Most of us assume that when we google a term, we all see the same results—the ones that the company's famous Page Rank algorithm suggests are the most authoritative based on other pages' links. But since December 2009, this is no longer true. Now you get the result that Google's algorithm suggests is best for you in particular—and someone else may see something entirely different. In other words, there is no standard Google anymore.[232]

The automated decisions of Google Search derive from a combination of the mathematics related to the algorithmic relevance of certain content and of the editorial decisions of the company itself, which, for example, chooses not to show results that violate copyrights, contain pornographic content, encourage violence, etc. Therefore, even subjective factors influence the ranking of results provided by the search engine.[233] According to Google's Code of Conduct, which interestingly abandoned its quite literal "don't be evil"

[229] Suzanne Scotchmer, *Innovation and Incentives* (Cambridge: MIT Press, 2004), 81.
[230] Marty, "La protection des algorithmes," 220.
[231] "[...] Google is not a neutral tool or a nondistorting lens: it is an actor and a stakeholder in itself. And, more important, as a publicly traded company, it must act in its shareholders' short-term interests, despite its altruistic proclamations." Vaidhyanathan, *Googlization of Everything*, 9. See also: Martin, "Ethical Implications and Accountability of Algorithms," 839.
[232] Eli Pariser, *The Filter Bubble: What the Internet Is Hiding from You* (London: Penguin Books, 2011), 2.
[233] Hazan, "Stop Being Evil," 795.

motto in 2018, "Google's intellectual property rights (our trademarks, logos, copyrights, trade secrets, "know-how," and patents) are among our most valuable assets."[234]

Shoshana Zuboff's forward-looking interpretation of Google's business model provides a critical awareness of the value of secrecy to its success.

> What might the response have been back then [initial stages of the company] if the public were told that Google's magic derived from its exclusive capabilities in unilateral surveillance of online behavior and its methods specifically designed to override individual decision rights? Google policies had to enforce secrecy in order to protect operations that were designed to be undetectable because they took things from users without asking and employed those unilaterally claimed resources to work in the service of others' purposes.[235]

This analysis brings forward a correlation between Google's opaque algorithm and the core role of its data extraction imperatives, which have been replicated by Facebook and other emerging data-driven companies.[236] The same predilection of these companies for trade secrets over patents and copyrights justifies the need to make the right to protect trade secrets dependent on the guarantee of an effective explanation of algorithmic decision-making.

8 Intermediary Conclusions

The conception of Google and its business model are firmly tied to its connections with Stanford University. Stanford engineering graduates not only founded the company but also comprised its first teams of employees. The geographical proximity to other sources of diverse and qualified software and hardware labor also favored an absorption of talents by the company. Alongside its human resources, one can also point to its contracts with governmental agencies, especially intelligence and defense, as a reason for Google's further development throughout the years.

Academic traits were also present in the design of Google's search engine, which differentiated itself from other online research tools that existed during its early days with its

[234] "Alphabet Investor Relations: Google Code of Conduct," Alphabet Inc., accessed July 31, 2018, https://abc.xyz/investor/other/code-of-conduct.
[235] Zuboff, *Age of Surveillance Capitalism*, 89.
[236] "Modern trade secrets, like the algorithm Google uses to power its search engine, may be even more resilient against disclosure. They are typically hard to reverse engineer, and there are fewer human employees involved who might otherwise leave and transfer their residual know-how to a competitor." Hrdy and Lemley, "Abandoning Trade Secrets," 13. See also: Lu, "Algorithmic Opacity," 114.

parameters for determining the relevance of results. At the time, the founders Sergey Brin and Lawrence Page publicly stated that advertising-funded search engines were inherently biased and ignored the needs of the consumers, which suggested that the nature of their tool was to be user-driven. However, they eventually surrendered to a business model highly dependent on advertising.

Unlike its competitors, Google sought to develop a search engine based on behavioral surplus, an increasingly complex set of collateral data from users, in order to perfect its search results. Its data collection, storage, and processing abilities grew exponentially, as did its prediction capacities geared toward consumer profiling and advertising, utilized by Google Ads. Meanwhile, internet users' preference shifted towards Google's search engine and its secondary applications, such as Gmail, Google Maps, and YouTube, which expanded even further its data collection capacity across the board. As this all took place, Google's services continued to be perceived as neutral, even though its personalization efforts were in fact generating tailored search outputs.

Google's business model was replicated by other startups in Silicon Valley, such as Facebook, and elevated them to a worldwide presence and economic success. Surveillance capitalism, through the exploitation of behavioral surplus, increased revenues, perfected advertisement strategies, and devised a new norm in the digital realm.[237] Google expanded its presence online through several other applications, and this ubiquity contributed even more to its rise to market dominance.

Since the intangible asset of Google's algorithm was at the core of its business model, difficulties concerning the regulation of this technology arose. Cases questioning the pervasiveness of Google applications and their inherent biases were being brought before courts, regulators, and civil society. Among some of the challenges the company initially faced were concerns regarding lack of consent, the explainability of automated decisions, bias towards its own applications, excessive collection of data, anti-competitive behavior, and, above all, insufficient transparency concerning its algorithmic business model.

Unlike patents and copyrights, which are protected by intellectual property rights, made public, and have clearly limited lifespans, Google's black box, as some authors refer to Google's algorithm , is comprised of trade secrets. Thus, its algorithm is characterized by a

[237] Regarding the role of behavioral analysis in consumeristic patterns, see: Genevieve Helleringer and Anne-Lise Sibony, "European Consumer Protection Through the Behavioral Lense," *Columbia Journal of European Law* 23 (May 16, 2017): 607-646, https://ssrn.com/abstract=3176817.

unique level of opaqueness and has become a nodal point online, intermediating users, information, businesses, and monetization.

Trade secrets are intimately connected to competition, since even the definition of the term is relational. Market value, a legal requirement for trade secret protection under the law, is a consequence of competitive advantages over other players in a given market. Though Google's abuse of its dominant position will be adequately analyzed in Chapter IV, given what has been explored so far, it is easy to understand why the company's algorithm, a precious intangible asset, is also at the heart of many problems concerning competition, data protection, access to information, and freedom of speech online.

Chapter 2

Regulating Google's Algorithm: The Case for a Right to Explanation under Data Protection Law

1 Introduction

This chapter focuses on the role of data protection laws in increasing the transparency of Google's automated decision-making. The analysis presented first deals with the issue that a lack of transparency and accountability surrounds the algorithm that feeds Google's search engine. Google Search particularly warrants attention because it is the company's most distinguished application, a trail-blazer not just with regard to revenue generation, but also because other tech companies have imitated its business model. The analysis will also consider the question whether results from algorithmic decisions can ever be transparent. Moreover, it attempts to investigate what that would mean in practice for users who are not tech-savvy.

The public perception surrounding Google's search engine is that it provides neutral and organic results, even though it is precisely its data personalization and individualized results that make it one of the most successful search tools in the digital realm. Acting as a nodal point between users seeking information online and content providers, Google benefits from its gatekeeping capacities and monetizes its accumulation of data collected both from users performing queries and businesses that wish to be ranked on its results page either through paid ads or non-paid results.

On account of the fact that Google creates value online by intermediating these relationships in a context characterized by extraordinary knowledge asymmetry—since the company possesses an abundance of information from both ends of the spectrum while its operations are somewhat hidden from users and client—data protection can thus be

considered a key proxy for another analytical perspective of the company's algorithm, one that serves as a means to limit trade secret inscrutability. The first chapter dealt with the first proxy, which was the proprietary aspects of algorithms as intangible assets, similar to intellectual property. The third and fourth chapters will analyze competition and fundamental rights, respectively, as the other proxies for limiting rights that protect algorithms as trade secrets.

Over the years, several initiatives, including some outside the borders of the European Union, have sought to provide some semblance of minimum standards concerning the processing of personal data. Convention 108, Directive 95/46, and the General Data Protection Regulation will be analyzed as cornerstones of individual data protection rights on the continent, incentivizing national legislation and jurisprudence on the subject. In the case of the GDPR, its Recital 71 prompted a correlation between data protection and the right to an explanation of algorithmic decisions, a correlation which this thesis intends to support.

The right to be forgotten in the European Union will be briefly examined both as a basis for users' rights online and as a sign that regulation of Google's search engine is attainable. A benchmark decision that stemmed from one of Spain's Data Protection Authority's regulations inspired other decisions and legislation in the Union, establishing data protection rights and holding companies like Google liable for certain violations of these rights as means by which the EU can exercise regulatory power in its jurisdiction in the digital age.

To conclude this chapter, I delve into more practical reasons why a right to explanation ought to be enforced despite claims that algorithms should be kept completely obscured due to the need to protect trade secrets. Regulation theory supports alternatives for governing the use of algorithms, especially in the case of Google and its intellectual assets, such as trade secrets, in order to provide basic transparency parameters for data subjects.

2 Transparency of Automated Decision-Making

There is a general consensus that transparency and accountability (as well as their conceptual synonyms) are among the parameters to strive for in the governance of algorithms, especially in the age of artificial intelligence, with all the concerns that have arisen with it.[238] These are two of a set of key requirements that artificial intelligence should meet in order to be trustworthy, according to the European Commission's High-Level Expert Group on AI.[239] This section investigates the importance of both these concepts, accountability being a ramification to which transparency is the base, with the aim of examining some of the incentives motivating regulation in this field.

It is also worth highlighting that transparency will be examined throughout this work through three different lenses: transparency for the consumer (or the final user of a search engine); transparency for the business user (or the user that wishes to see his or her links displayed in Google's results page); and transparency for regulators (or public authorities responsible for ensuring that fundamental rights, competition, and data protection standards are met).

First and foremost, **transparency** is essentially a relational concept that addresses a rapport between two different parties or entities, such as the government and its citizens, a corporation and its shareholders, or an internet platform and its users, to give a few examples.[240] Within the framework of internet governance and technology, particularly with regard to the governance of algorithms, this principle refers to comprehensible and intelligible ways of functioning, or rather, in basic terms, a lack of opacity or ignorance.[241]

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[238] Florian Saurwein, Natascha Just, and Michael Latzer, "Governance of Algorithms: Options and Limitations," *Info* 17, nº 6 (September 2015): 35-49, https://doi.org/10.1108/info-05-2015-0025.

[239] These concepts will be explored in more detail throughout this chapter. The Ethics Guidelines for Trustworthy Artificial Intelligence were presented to the European Commission in April 2019 and are part of the Digital Single Market strategy. See: European Commission, "Ethics Guidelines for Trustworthy AI," (April 8, 2019), https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1.

[240] Heike Felzmann et al., "Transparency You Can Trust: Transparency Requirements for Artificial Intelligence between Legal Norms and Contextual Concerns," *Big Data & Society* 6, no. 1 (January 2019): 8-9, https://doi.org/10.1177/2053951719860542.

[241] "Surveillance capitalists dominate an abnormal division of learning in which they know things that we cannot know while compelled to conceal their intentions and practices in secret backstage action. It is impossible to understand something that has been crafted in secrecy and designed as fundamentally illegible. These systems are intended to ensnare us, preying on our vulnerabilities bred by an asymmetrical division of learning and amplified by our scarcity of time, resources, and support." Shoshana Zuboff, *The Age of Surveillance Capitalism* (New York: Profile Books Ltd, 2019), 323-324.

According to a 2012 glossary of key terms and notions about internet governance, transparency can also be defined as

> the principle of determining the manner in which information is conveyed to people and its purpose. It applies mostly to the media in their relation to governments. It is supposed to foster political participation and to ensure freedom of expression and accountability without abuse of power.[242]

This glossary definition highlights the concept of transparency as a means to guarantee certain civil liberties relevant to internet governance. In the case of the role search engines play in users' lives, one can assert that the disclosure of their operational parameters contributes to ensuring that the results provided are trustworthy to its users, whether they be consumers of that service or business users.[243] Consumers would be able to access the best and most relevant information available according to the parameters of their queries. Furthermore, websites, other users, and businesses that wish to appear as a referential source of information to the users performing searches would be assured that the methods used by the search engine are sufficiently comprehensible and intelligible to support fair competition between those who believe they have the best possible answer to a query.

Conversely, a search engine that lacks transparency has the potential to be untrustworthy and present results biased by economic, cultural, or political interests of all kinds.[244] As described in the previous chapter and introduction, search engines can use various criteria that are not necessarily aligned with the best interests of users to determine the individual output for a search request. Thus, the name "black box" is commonly used when referring to the closely guarded inner workings of algorithms used to determine search results.[245]

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[242] "Glossary of Key Terms and Notions about Internet Governance," *Revue Française d'Études Américaines* 134, nº 4 (2012): 28, https://doi.org/10.3917/rfea.134.0025.
[243] Lisa Käde and Stephanie von Maltzan, "Towards a Demystification of the Black Box—Explainable AI and Legal Ramifications," *Journal of Internet Law* 23, no. 3 (September 2019): 12, https://cibleplus.ulb.ac.be/permalink/32ULDB_U_INST/1cfj0qe/cdi_proquest_reports_2297099124.
[244] "Because of the lack of transparency in the operation of search engines, it is unclear whether the underlying principles for the governance of accessibility of particular search engines are informed by commercial, ideological or scientific principles. It can be argued that by refusing to be transparent about the underlying principles for the selection and ranking of references, search engines refuse to publicly take responsibility for the search results they offer to their users." Joris van Hoboken, *Search Engine Freedom: On the Implications of the Right to Freedom of Expression for the Legal Governance of Web Search Engines*, Information Law Series, vol. 27 (Alphen aan den Rijn, The Netherlands: Kluwer Law International, 2012), 206.
[245] Tom Taulli, *Introdução à inteligência artificial: Uma abordagem não técnica* (São Paulo: Novatec Editora Ltda., 2020), 38. See also: Riccardo Guidotti et al., "A Survey of Methods for Explaining Black Box Models," *ACM Computing Surveys* 51, no. 5 (January 23, 2019): 10, https://doi.org/10.1145/3236009.

> The term "black box" is a useful metaphor for doing so, given its own dual meaning. It can refer to a recording device, like the data-monitoring systems in planes, trains, and cars. Or it can mean a system whose workings are mysterious; we can observe its inputs and outputs, but we cannot tell how one becomes the other.[246]

Efforts to tackle this issue, either through legislation[247] and sectoral guidelines on the subject,[248] or by specialized literature,[249] have employed contextualization approaches. The history of such efforts directly informs our discussion regarding Google's search engine and the need for its automated decision processes to be subject to a user's right to explanation. "Challenges to algorithmic decision-making teach a valuable lesson: knowledge is power. In efforts to confront algorithmic decision-making, the first step is nearly always an arduous journey to shed light on why, and how, the decision was reached in the first instance."[250]

With regard to legislative strategies for regulation, the example of Recital 58 of the General Data Protection Regulation states that

> **the principle of transparency requires that any information addressed to the public or to the data subject be concise, easily accessible and easy to understand, and that clear and plain language** and, additionally, where appropriate, visualisation be used. Such information could be provided in electronic form, for example, when addressed to the public, through a website. This is of particular relevance in situations where the proliferation of actors and the technological complexity of practice make it difficult for the data subject to know

[246] Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (Cambridge: Harvard University Press, 2015), 3.
[247] The General Data Protection Regulation, for example, regards transparency and accountability as principles relating to the processing of personal data and invokes these principles throughout its text. See Recitals 58 and 85, Article 5, among others. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), 2016 O.J. (*L 119*), https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596321608879&uri=CELEX:32016R0679.
[248] The Organisation for Economic Co-operation and Development (OECD) has issued recommendations that identify five principles for responsible stewardship of trustworthy artificial intelligence, namely: inclusive and sustainable growth and well-being, human-centered values and fairness, transparency and explainability, robustness and safety, and accountability. "OECD Moves Forward on Developing Guidelines for Artificial Intelligence (AI)," Organisation for Economic Co-operation and Development, February 20, 2019, http://www.oecd.org/going-digital/ai/oecd-moves-forward-on-developing-guidelines-for-artificial-intelligence.htm.
[249] See: Tae Wan Kim and Bryan Routledge, "Why a Right to an Explanation of Algorithmic Decision-Making Should Exist: A Trust-Based Approach," *Business Ethics Quarterly* (2021): 1–28, https://doi.org/10.1017/beq.2021.3; Saurwein, Just, and Latzer, "Governance of Algorithms," 35-49; "Glossary of Key Terms," 25.
[250] Hannah Bloch-Wehba, "Access to Algorithms," *Fordham Law Review* 88, no. 4 (March 2020): 1295, https://ir.lawnet.fordham.edu/flr/vol88/iss4/2/.

> and understand whether, by whom and for what purpose personal data relating to him or her are being collected, such as in the case of online advertising.[251]

Since the right to explanation stems from a recital preceding the GDPR, it is important to note that elements of transparency as a principle can also be found in the Regulation.

> The controller shall take appropriate measures to provide any information [. . .] relating to processing to the data subject in a concise, transparent, intelligible and easily accessible form, using clear and plain language, in particular for any information addressed specifically to a child. The information shall be provided in writing, or by other means, including, where appropriate, by electronic means. When requested by the data subject, the information may be provided orally, provided that the identity of the data subject is proven by other means.[252]

This definition regarding the processing of personal data is corroborated by authors such as Bruce Schneier, who states that "people should be entitled to know what data is being collected about them, what data is being archived about them, and how data about them is being used—and by whom."[253]

The Guidelines on Automated Individual Decision-Making and Profiling, from the Article 29 Data Protection Working Party, highlight the main purpose of transparency when it states: "data subject will only be able to challenge a decision or express their view if they fully understand how it has been made and on what basis."[254] Therefore, transparency requirements act as a **precondition for the ability to exercise other legal rights** within the GDPR, including a right to explanation.

Some authors will focus on fostering transparency by means of an intentional understanding of algorithms. In other words, the *why* behind the processing of collected data

[251] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (my boldface).
[252] Article 12 (1). Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.
[253] Bruce Schneier, *Data and Goliath: The Hidden Battles to Collect Your Data and Control Your World* (New York, N.Y: W.W. Norton & Company Inc., 2015), 186. Regarding the cascade effects of data processing, Oostveen and Irion assert that: "The effects of personal data collection and processing permeate individuals' lives in ways that affect personal autonomy, with significant risks of interfering with individual rights and freedoms across the spectrum, risks that were probably unforeseen at the time of collection. In regulating the beginning of the cascade of effects, the point where personal data are collected and further processed, data protection law has protective potential." Manon Oostveen and Kristina Irion, "The Golden Age of Personal Data: How to Regulate an Enabling Fundamental Right?" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 19, https://doi.org/10.1007/978-3-662-57646-5.
[254] Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679" (WP251rev.01, 3 October, 2017), at 27, https://ec.europa.eu/newsroom/article29/item-detail.cfm?item_id=612053.

may be more important than *how* it was processed.[255] It would be more productive to the discussion and to the resolution of actual explainability problems to shift the focus from the criteria of transparency as the revealing of source codes to a much broader view of the algorithm.[256] Instead, other certain questions should guide our reasoning: What are the goals of the algorithm? Which standards did coders have in mind when designing the algorithm? Were different options and "tweaks" tested and rejected? If so, then why?[257]

The answers to these and other questions may provide a much deeper understanding of algorithm-based business models than the revelation of a source code and are much more likely to satisfy the "right to explanation" requirements of Recital 71 of the GDPR. Chances are, explainability may be more feasible for all parties involved if it focuses on the "context underlying a system's mechanism of action as a process within a broad sociotechnical system."[258]

In the text of the GDPR, while the definition of the principle of transparency provided refers to general information regarding the use of personal data, it is contextualized in several instances when applied to the processing of data (Recital 39), to codes of conduct (Article 40), to compliance certification (Recital 100), to the right to explanation (Recital 71), and to the right to be informed (Articles 12-14).[259] Thus a simple quantitative analysis of the regulation's text reveals that considerable importance is given to the concept of transparency and that it is essential to interpreting and enforcing the provisions of the GDPR.

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[255] Joshua A. Kroll, "The Fallacy of Inscrutability," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 376, no 2133 (November 28, 2018): 6, https://doi.org/10.1098/rsta.2018.0084.

[256] "Any decisions produced by an algorithmic system should be explainable to the people affected by those decisions. These explanations must be accessible and understandable to the target audience; purely technical descriptions are not appropriate for the general public. Explaining risk assessment scores to defendants and their legal counsel would promote greater understanding and help them challenge apparent mistakes or faulty data." Nicholas Diakopoulos and Sorelle Friedler, "How to Hold Algorithms Accountable," *MIT Technology Review*, November 17, 2016, https://www.technologyreview.com/2016/11/17/155957/how-to-hold-algorithms-accountable/. See also: Guidotti et al., "Survey of Methods;" Margot E. Kaminski, "The Right to Explanation, Explained," *Berkeley Technology Law Journal* 34, no.1 (May 2019): 212-213, https://doi.org/10.15779/Z38TD9N83H; Felzmann et al., "Transparency You Can Trust," 8.

[257] Kroll, "Fallacy of Inscrutability," 6. See also: Luciana Monteiro Krebs et al., "Tell Me What You Know: GDPR Implications on Designing Transparency and Accountability for News Recommender Systems," *CHI EA'19: Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems* (May, 2019): 3, https://doi.org/10.1145/3290607.3312808.

[258] Kroll, 7. See also: Genevieve Helleringer and Anne-Lise Sibony, "European Consumer Protection Through the Behavioral Lense," *Columbia Journal of European Law* 23 (May 16, 2017): 625-626, https://ssrn.com/abstract=3176817.

[259] Gianclaudio Malgieri, "Automated Decision-Making in the EU Member States: The Right to Explanation and Other 'Suitable Safeguards' in the National Legislations," *Computer Law & Security Review* 35, no.5 (October, 2019): 1-26, https://doi.org/10.1016/j.clsr.2019.05.002.

A similar framework has been drawn up by organizations such as the Organisation for Economic Co-operation and Development (OECD), where the development of artificial intelligence (AI) has prompted a study focused on the ethical, technical, and legal issues surrounding the AI landscape, with transparency at its core.[260]

Since artificial intelligence is at the core of the mechanisms employed by Google's search engine,[261] it is essential to understand the guidelines recommended by organizations with an impact on AI policy, such as the OECD. In June 2019, the organization published its analysis, in which it states that "there should be transparency and responsible disclosure around AI systems to ensure that people understand AI-based outcomes and can challenge them."[262]

In its guidelines, the organization recommends more transparency standards concerning the functioning of algorithms that involve the use of artificial intelligence, including for the economic reason of increasing reliability and adoption among users.[263] Furthermore, the study also relates that it is not necessary to disclose algorithmic codes or datasets to enact such standards, especially due to the fact that, because of the codes' complexity, this would not necessarily provide transparency to users and could reveal a trade secret belonging to their developers. Instead, the goal ought to be to focus on "who participates in the process and the factors used to make the decision" in order to "disclose how AI is being used in a prediction, recommendation or decision."[264]

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[260] "OECD Principles on Artificial Intelligence," Organisation for Economic Co-operation and Development, June 2019, http://www.oecd.org/going-digital/ai/principles/.

[261] Search engines use artificial intelligence to learn how to create the best possible list of outputs from a pool of outcomes, learning from each of the variables over time. Artificial intelligence used by search engines also performs tasks such as pattern detection among search variables. It identifies and learns from similarities between searched keywords, improves ad quality and targeting, and provides query clarification or suggestions for different entries (showing results for a corrected input that was submitted with a typo by the user, for example). "For example, if one result on a search engine is ranking third but has a higher click through rate than the options above it, the search engine would learn from this anomaly and bump that result to the top." Mike Kaput, "How Search Engines Use Artificial Intelligence," Marketing Artificial Intelligence Institute, May 6, 2018, https://www.marketingaiinstitute.com/blog/how-search-engines-use-artificial-intelligence. See also: Kaushik Sekaran et al., "Design of Optimal Search Engine Using Text Summarization through Artificial Intelligence Techniques." *Telkomnika* 18, no. 3 (06, 2020): 1268-1274, http://dx.doi.org/10.12928/telkomnika.v18i3.14028; Sebastian Schultheiß and Dirk Lewandowski, "'Outside the Industry, Nobody Knows What We Do' SEO as Seen by Search Engine Optimizers and Content Providers," *Journal of Documentation* 77, no.2 (February 2021): 542-557, https://doi.org/10.1108/JD-07-2020-0127; Newton Lee, ed., *Google It: Total Information Awareness,* (New York, NY: Springer New York, 2016).

[262] "OECD Principles on Artificial Intelligence," Organisation for Economic Co-operation and Development, June 2019, http://www.oecd.org/going-digital/ai/principles/.

[263] *Artificial Intelligence in Society* (Paris: OECD Publishing, 2019), https://doi.org/10.1787/eedfee77-en.

[264] *Artificial Intelligence in Society*, 90. See also: Bilel Benbouzid, "Values and Consequences in Predictive Machine Evaluation. A Sociology of Predictive Policing," *Science & Technology Studies* 32. No. 4 (2019): 123-124, https://sciencetechnologystudies.journal.fi/article/view/66156.

The European Commission's High-Level Group on Artificial Intelligence (AI HLEG) was created in 2018 with 52 members from different backgrounds (academia, civil society, and business sectors). Their tasks comprised the drafting of recommendations and guidelines, in addition to supporting the creation of a European AI Alliance.[265] Among the first deliverables were the Ethics Guidelines for Trustworthy AI, in which transparency is considered a key requirement, explicitly derived from the principle of explainability:

> **Transparency**. This requirement is closely linked with the principle of explicability and encompasses transparency of elements relevant to an AI system: the data, the system and the business models.
>
> **[**. . .]
>
> **Explainability**. Explainability concerns the ability to explain both the technical processes of an AI system and the related human decisions (e.g. application areas of a system). Technical explainability requires that the decisions made by an AI system can be understood and traced by human beings. Moreover, trade-offs might have to be made between enhancing a system's explainability (which may reduce its accuracy) or increasing its accuracy (at the cost of explainability). Whenever an AI system has a significant impact on people's lives, it should be possible to demand a suitable explanation of the AI system's decision-making process. Such explanation should be timely and adapted to the expertise of the stakeholder concerned (e.g. layperson, regulator or researcher). In addition, explanations of the degree to which an AI system influences and shapes the organisational decision-making process, design choices of the system, and the rationale for deploying it, should be available (hence ensuring business model transparency).[266]

Similarly, the AI HLEG created assessment lists for trustworthy artificial intelligence, in which transparency is one of the key elements: "A crucial component of achieving Trustworthy AI is transparency which encompasses three elements: 1) traceability, 2) **explainability,** and 3) open communication about the limitations of the AI system." This self-assessment list presents a questionnaire to AI developers to evaluate their systems' explainability through "the reasoning behind the decisions or predictions that the AI system makes."[267] Interestingly, the self-assessment questions focus on the relational aspect of AI systems, not if source codes and algorithms are open to public scrutiny. This reinforces the

[265] European Commission, "High-Level Expert Group on Artificial Intelligence," June 23, 2021 (last update), https://digital-strategy.ec.europa.eu/en/policies/expert-group-ai.
[266] European Commission, "Ethics Guidelines for Trustworthy AI," 18.
[267] European Commission, "The Assessment List for Trustworthy Artificial Intelligence (ALTAI)," (July 17, 2020), at 14, https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=68342.

idea of explainability being a concept intimately related to users and their comprehension of the automated decision-making process.[268]

The European Union has also tackled the issue of transparency through its antitrust authorities. In March 2019, for example, the European Commission issued a €1,494,459,000.00 (1.29% of Google's turnover in 2018) fine against Google for its violation of antitrust rules due to "illegal misuse of its dominant position in the market for the brokering of online search adverts" by "imposing anti-competitive contractual restrictions on third-party websites."[269] This incident was related to the search function provided by Google on other websites, such as newspapers, blogs, and travel sites. According to the investigation that led to the fine, Google had imposed exclusivity clauses on these websites since 2006, prohibiting them from placing search adverts from other engines on their search results pages. Google also demanded higher visibility for its own results, which included adverts, thus "controlling competing adverts' performance."[270]

The lack of transparency underlying Google's practices, whether they be favoring its own secondary applications or limiting results according to its commercial interests, is also a core issue for questions regarding competition. Since transparency is paramount for both consumers and business users on this platform, this is a key aspect to investigate. Google's competition cases in the European Union will be analyzed in detail in the next chapter.

The investigation that led to the March 2019 fine against Google is only the most recent of several regarding Google's alleged breach of EU antitrust rules. In June 2017, a €2.42 billion fine had been imposed on Google for abusing its dominance as a search engine by giving an illegal advantage to its own comparison-shopping service. The European Commission asserted that the search engine had systematically favored its own online price comparison services by demoting competitors on search results in order to direct users of the platform toward Google's own parallel service.[271]

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[268] "Did you explain the decision(s) of the AI system to the users? Do you continuously survey the users if they understand the decision(s) of the AI system?" European Commission, "The Assessment List for Trustworthy Artificial Intelligence (ALTAI)," 15.

[269] European Commission, "Antitrust: Commission Fines Google €1.49 Billion for Abusive Practices in Online Advertising," press release, March 20, 2019, http://europa.eu/rapid/press-release_IP-19-1770_en.htm.

[270] European Commission, "Antitrust: Commission Fines Google €1.49 Billion."

[271] "Evidence shows that even the most highly ranked rival service appears on average only on page four of Google's search results, and others appear even further down. Google's own comparison shopping service is not subject to Google's generic search algorithms, including such demotions." European Commission, "Antitrust: Commission Fines Google €2.42 Billion for Abusing Dominance as Search Engine by Giving Illegal Advantage to Own Comparison Shopping Service," press release, June 27, 2017, http://europa.eu/rapid/press-release_IP-17-1784_en.htm.

The European Commission also fined Google €4.34 billion in July 2018 due to illegal practices related to the imposition of its search engine on Android mobile devices. According to the investigation, Google had "required manufacturers to pre-install the Google Search app and browser app (Chrome) as a condition for licensing Google's app store (the Play Store)." Since the company is regarded as having an overwhelmingly dominant position in the market of general internet search services,[272] their demand that large manufacturers and mobile network operators exclusively pre-install the Google Search and Google Chrome apps on their devices was considered to constitute an illegal tying of Google's search and browser apps.[273] Moreover, its practice of preventing manufacturers from "selling even a single smart mobile device running on alternative versions of Android that were not approved by Google" was considered an "illegal obstruction of development and distribution of competing Android operating systems."[274]

These cases highlight the possible negative outcomes of technologies and business models based on opaque rules. The lack of transparency of such technologies and business models can give rise to the abuse of dominant positions and seriously compromise the markets in which they thrive, if we analyze it through the lenses of business users.[275]

A characteristic of algorithms and computer programs is that their objective is to be as efficient as possible since they are based on logic and mathematics. Nevertheless, this leaves little room for subjectivity, subtlety, nuance, and, therefore, fairness.[276] These are all such difficult concepts to grasp, even for the most well-renowned researchers, that their translation into computer codes also represents a challenging exercise to any team of developers. "Opaque and invisible models are the rule, and clear ones very much the exception. [. . .] Even when such models behave themselves, opacity can lead to a feeling of unfairness."[277]

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[272] "Google is dominant in the national markets for general internet search throughout the European Economic Area (EEA), i.e. in all 31 EEA Member States. Google has shares of more than 90% in most EEA Member States. There are high barriers to enter these markets. This has also been concluded in the Google Shopping decision of June 2017." European Commission, "Antitrust: Commission Fines Google €4.34 Billion for Illegal Practices Regarding Android Mobile Devices to Strengthen Dominance of Google's Search Engine," press release, July 18, 2018, http://europa.eu/rapid/press-release_IP-18-4581_en.htm.
[273] See also: Edward Iacobucci and Francesco Ducci, "The Google Search Case in Europe: Tying and the Single Monopoly Profit Theorem in Two-Sided Markets," *European Journal of Law and Economics* 47, no.1 (February 2019): 15-42, https://doi.org/10.1007/s10657-018-9602-y.
[274] European Commission, "Antitrust: Commission Fines Google €4.34."
[275] Iacobucci and Ducci, "Google Search Case in Europe," 22.
[276] Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York: Crown Publishers, 2016), 95.
[277] O'Neil, 28.

With regard to **algorithmic complexity**, another commonly-used reason to justify the lack of explainability of computer programs, Joshua Kroll warns that "computer systems are not pure, neutral tools, but products of their sociotechnical context, and must be considered as such. And in context, inscrutability is not a result of technical complexity but rather of power dynamics in the choice of how to use those tools."[278] Zuboff also asserts that "transparency and privacy represent friction for surveillance capitalists in much the same way that improving working conditions, rejecting child labor, or shortening the working day represented friction for the early industrial capitalists."[279]

In other words, computer systems can be comprehended by means of two facets: their technical design and mechanics (how they operate); and their goals, that is, the correlation between inputs and outputs, which is established within a particular social context (why it operates).[280] Both these aspects are susceptible to scrutiny, not just by specialized technical personnel, but also by legal and regulatory teams that wish to understand the particular decisions and power dynamics involved in systems' creation and operation.

According to Frank Pasquale, "without access to the underlying data and code, we will never know what type of tracking is occurring, and how the discrimination problems long-documented in 'real life' may even now be insinuating themselves into cyberspace."[281] For this author, an essential step towards fairness is intrinsically related to the concept of transparency to the general public, to its understanding of how an algorithm performs its tasks.

It is fundamental to this discussion to recognize that, in many instances, traditional transparency is simply not enough.[282] It has to be accompanied by reasoning that is

[278] Kroll, "Fallacy of Inscrutability," 2. Kirsten Martin also discusses the role of the inscrutability discourse in algorithmic governance: "Inscrutable algorithms that are designed to minimize the role of individuals in the decision take on more accountability for the decision. In fact, one should be suspect of the inscrutable defense: when systems have been called inscrutable in order to avoid being effectively governed such as Enron's accounting, banks' credit-default swaps, or a teenager's reasons behind a bad grade. The inscrutable defense ('It's too complicated to explain') does not absolve a firm from responsibility; otherwise, firms would have an incentive to create complicated systems to avoid accountability. Firms and individuals are held accountable for decisions and products that are difficult to explain." Kirsten Martin, "Ethical Implications and Accountability of Algorithms," *Journal of Business Ethics* 160, no. 4 (December, 2019): 843, https://doi.org/10.1007/s10551-018-3921-3.

[279] Zuboff, *Age of Surveillance Capitalism*, 249.

[280] Kroll, 2.

[281] Pasquale, *Black Box Society*, 40.

[282] "Public options in search and finance need to be developed to create spaces not only for transparency, but for intelligibility as well. Failing that, we can count on a society ever more skewed to the advantage of black box insiders, and a populace ever more ignorant of how its key institutions actually function." Pasquale, 217.

intelligible according to the users' reality (algorithmic literacy).[283] If not, an efficient way for companies to avoid having their competitive advantages publicized while still complying with legal standards is to avoid "plain language" understandable by most consumers and use highly complex language in their disclosures.[284] After all, "achieving transparency requires considering who must learn what in order to find a system understandable."[285]

Additionally, it is worth remembering that the disclosure of computer codes does not guarantee real transparency.[286] This is exemplified by the fact that a piece of software being open source, such as the case with Mozilla's Firefox web browser, VLC Media Player, and Trello, does not automatically assure users' understanding of the inner workings of an algorithm. Users may be lay people in computer science, may not understand the concept of bias, and collective action may still be needed to interpret, criticize, and even propose changes to an open-source algorithm.

Similar to what the character Joseph K. undergoes in Franz Kafka's *The Trial*, a lack of knowledge regarding the basic motives and parameters that guide an important decision engenders a feeling of helplessness in internet users while providing substantial leverage to algorithmic business models. If the algorithm makes automated decisions that substantially affect the user and provides in the best-case scenario only a few explanations with regard to how it reached those decisions, the affected user has no basis to disagree or even appeal. As political philosopher Kate Vredenburgh explains: "Often these decision-makers provide little or no reason for their actions, which means that the people affected have no basis to object."[287]

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[283] Emre Bayamlıoğlu, "The Right to Contest Automated Decisions under the General Data Protection Regulation: Beyond the So−called 'Right to Explanation'," *Regulation & Governance* (March 14, 2021): 10-11, https://doi.org/10.1111/rego.12391.

[284] Pasquale, *Black Box Society,* 8.

[285] Kroll, "Fallacy of Inscrutability," 9. Regarding the relational aspects of algorithmic explainability, Bayamlıoğlu asserts that: "Especially in terms of understanding the context of the decision, a proper scrutiny of automated decisions requires both the use of system-centric and user-centric approaches simultaneously." Bayamlıoğlu, "Right to Contest Automated Decisions," 16.

[286] "[These systems] reach a level of complexity at which even their programmers can't fully explain any given output. [. . .] The core software engine of Google search is hundreds of thousands of lines of code." Eli Pariser, *The Filter Bubble: What the Internet Is Hiding from You* (London: Penguin Books, 2011), 202. Borgesius also argues that revealing the code does not necessarily result in transparency: "In many circumstances, examining the code of an algorithmic system does not provide much useful information, as the system can only be assessed when it is used in practice." Frederik J. Zuiderveen Borgesius, "Strengthening Legal Protection against Discrimination by Algorithms and Artificial Intelligence," *The International Journal of Human Rights* 24, no.10 (March 25, 2020): 1583, https://doi.org/10.1080/13642987.2020.1743976. See also: Käde, "Towards a Demystification of the Black Box," 10.

[287] Kate Vredenburgh, "HAI Fellow Kate Vredenburgh: The Right to an Explanation," interview by Katharine Miller, *Stanford HAI*, June 24, 2020, https://hai.stanford.edu/blog/hai-fellow-kate-vredenburgh-right-explanation. According to Brkan and Bonnet: "Algorithmic decision-making, for its part, is an overarching notion, encompassing both automated and autonomous decision-making. It means that a given decision is made (partly or completely) with the help of an

In this analysis, we are considering Google's search engine and the possible effects of its platform's lack of transparency on the rights of access to information, competition, and freedom of speech. However, as Cathy O'Neil explores in *Weapons of Math Destruction*, the automated decisions of such digital platforms are ever-more pervasive in today's society, with consequences for far-ranging aspects such as healthcare, insurance, employment, education, finance, and even criminal justice.[288] Kate Vredenburgh supports this assessment.

> If you do a cost-benefit analysis without taking into account how morally important explanations are, you might come out with what we have now, to be honest. That employers are not required to explain why they fire people and they definitely aren't required to explain why they didn't hire someone. In the criminal justice system you get a lot of proprietary algorithms where they might say they did a cost-benefit analysis and it looks overall more efficient or better for welfare, but the justification is incomplete at best. [289]

According to Frédéric Marty, "trade secrets, a *sine qua non* condition for the protection of algorithms reduces transparency and accountability of the decisions of dominant market agents"[290] (my translation). His argument is echoed by Cathy O'Neil, whose predictions for the future of algorithmic expansion not only require more transparency in order to promote accountability, but also that such a standard of reduced opacity be contextual.

> Algorithms are only going to become more ubiquitous in the coming years. We must demand that systems that hold algorithms accountable become ubiquitous as well. Let's start building a framework now to hold algorithms accountable for the long term. Let's base it on evidence that the algorithms are legal, fair, and grounded in fact. And let's keep evolving what those things mean, depending on the context.[291]

Researchers such as Frank Pasquale have long advocated for a concept of **qualified transparency** that, again, would not necessarily entail placing the algorithmic-based business model in jeopardy.[292] With the aim of balancing the different stakes entailed in

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algorithm; this algorithm may be either automated or autonomous and based or not based on AI techniques." Maja Brkan and Grégory Bonnet, "Legal and Technical Feasibility of the GDPR's Quest for Explanation of Algorithmic Decisions: Of Black Boxes, White Boxes and Fata Morganas," *European Journal of Risk Regulation* 11, no. 1 (March 2020): 24, https://doi.org/10.1017/err.2020.10.

[288] O'Neil, *Weapons of Math Destruction*, 7.

[289] Vredenburgh, "HAI Fellow Kate Vredenburgh."

[290] Frédéric Marty, "La protection des algorithmes par le secret des affaires: Entre risques de faux négatifs et risques de faux positifs," *Revue internationale de droit économique* t.XXXIII, no 2 (2019): 213, https://doi.org/10.3917/ride.332.0211.

[291] O'Neil, 231.

[292] "When a website's ranking suddenly tumbles dozens of places, and it has a plausible story about being targeted as a potential rival of Google, is it too much to ask for some third party to review the particular factors

algorithm-based business models, from proprietary to users' rights, he proposes a qualified transparency, which would consist of "limiting revelations in order to respect all the interests involved in a given piece of information."[293] Referring to the Julien Assange and Edward Snowden episodes of the last decade, the author argues that some level of responsibility in curating and filtering is necessary when disclosing information to the general public.[294] As disruptive and controversial as these leaks have been for government agencies, the GAFA (Google, Amazon, Facebook, and Apple) companies, and international politics, there have been edits, withholding of documents, and some level of sanitization to protect information that put people in danger.[295]

According to Pasquale, the methodologies used in the provision of online services can provide for reasonable explanations of automated decisions with the primary aim of **fairly balancing** the interests of those who wish to appear at the top of the search results pages of search engines like Google's. He recommends disclosures and audits be adopted as regular practices for ensuring the transparency of automated decision processes employed by tech giants such as GAFA. Such practices would also constitute measures to increase competitiveness online and guarantee consumer choice.[296]

Given that the rationale behind assuring intellectual property rights seeks to balance the efforts of inventors with the needs of societal well-being, a qualified transparency approach seems to be the answer for such a sharply divided scenario. It takes into account the

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that led to the demotion? Changes in ranking methodology are rigorously tested and documented by firms like Google. Given how quickly a sudden drop can occur, we are not discussing an infinite variety of changes to be reviewed. Nor would there necessarily be a disclosure of the entire algorithm to a third-party auditor, or even the revelation of the relevant changes in the algorithm to the party involved, much less the general public. This is highly qualified transparency." Pasquale, *Black Box Society*, 161. See also: Kaminski, "Right to Explanation, Explained," 210; Felzmann et al., "Transparency You Can Trust," 3.

[293] Pasquale, *Black Box Society*, 142. Regarding this method of tackling transparency, see also: "Tailoring disclosures to the informational needs of individuals or groups of individuals increases the relevance of the information provided and reduces the risk of information overload. Personalization could possibly rejuvenate disclosures as a regulatory tool." Christoph Busch, "Implementing Personalized Law: Personalized Disclosures in Consumer Law and Data Privacy Law," *The University of Chicago Law Review* 86, no. 2 (March 2019): 330, https://www.jstor.org/stable/10.2307/26590557; Maayan Perel and Niva Elkin-Koren, "Black Box Tinkering: Beyond Disclosure in Algorithmic Enforcement," *Florida Law Review* 69, no. 1 (January 2017): 194, http://www.floridalawreview.com/wp-content/uploads/Perel_Elkin-Koren.pdf.

[294] Pasquale, 142.

[295] Julian Assange, *When Google Met WikiLeaks* (London: OR Books, 2014), 21.

[296] Pasquale, 156. Additionally, the Article 29 Data Protection Working Party recommends that data controllers implement the practice of auditing algorithms "to prove that they are actually performing as intended, and not producing discriminatory, erroneous or unjustified results." Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679," at 32. See also: Joanna Mazur, "Right to Access Information as a Collective-Based Approach to the GDPR's Right to Explanation in European Law," *Erasmus Law Review* 11, no. 3 (December 2018): 179-180, https://ssrn.com/abstract=3356770; Busch, "Implementing Personalized Law," 328-329.

different recipients of automated decisions, not just individual users, but also other companies and regulators.[297] For those purposes of greater equity between the parties involved (users, businesses and regulators), the fair balancing exercise takes into account fundamental rights when implementing EU law in practice, including qualified transparency, which will be discussed in detail in chapter 4.

> Generating personalized disclosures on the basis of user data is a form of algorithmic regulation. Therefore, compliance monitoring and enforcement will require new regulatory approaches involving algorithm audits and data quality management in order to ensure the proper functioning of the new data-driven regulatory system.[298]

More often than not, the issues surrounding opacity also demonstrate the complexity of the very sociotechnical power dynamics that control the technical mechanisms at play.[299] As a matter of fact, both the options of algorithmic opacity and complete algorithmic transparency are not ideal when it comes to balancing users' rights with proprietary rights of intellectual assets.[300] An ideal solution considers the interests of algorithm developers at the same time it provides an adequate explanation of the results given by the algorithm or algorithms in a way that is appropriate to the particular case or circumstance.[301] What is more, regulators ought to assign "different disclosure obligations to various firms, according to their features, the needs of their consumers, and the specific characteristics of the markets where those firms operate."[302]

In a sense, the proposals for the Digital Markets Act[303] and the Digital Services Act,[304] which will be discussed in detail in chapter 3, aim to respond to this regulatory contextualization and modernization. Both proposals address the issue of modernizing regulations within the EU, considering the particularities of ever-changing and innovative

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[297] Kaminski, "Right to Explanation, Explained," 210-211. See also: Felzmann et al., "Transparency You Can Trust," 3.
[298] Busch, "Implementing Personalized Law," 330. See also: Borgesius, "Strengthening Legal Protection," 1581; Kaminski, "Right to Explanation, Explained," 210.
[299] Kroll, "Fallacy of Inscrutability," 11.
[300] Pasquale, , *Black Box Society,* 163.
[301] Shruthi Chari et al., "Directions for Explainable Knowledge-Enabled Systems," 5, arXiv, March 17, 2020, https://arxiv.org/pdf/2003.07523.pdf.
[302] Fabiana Di Porto and Mariateresa Maggiolino, "Algorithmic Information Disclosure by Regulators and Competition Authorities," *Global Jurist* 19, no. 2 (July 26, 2019): 7, https://doi.org/10.1515/gj-2018-0048.
[303] Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final, https://eur-lex.europa.eu/legal-content/en/TXT/?qid=1608116887159&uri=COM%3A2020%3A842%3AFIN.
[304] Proposal for a Regulation of the European Parliament and of the Council on a Single Market for Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final, https://eur-lex.europa.eu/legal-content/en/TXT/?qid=1608117147218&uri=COM%3A2020%3A825%3AFIN.

markets. At the same time they focus on minimum market standards to assign liabilities, set transparency requirements, and determine forms of disclosure of confidential information.[305]

Other authors suggest Pasquale's proposal as an additional provision to effectively guarantee a right to explanation, particularly within the legal framework of the European Union and the GDPR.

> Both the right of access and any future right to explanation will face significant limitations due to the sensitivity of trade secrets and intellectual property rights. [. . .] An ideal solution would allow for examination of automated decision-making systems, including the rationale and circumstances of specific decisions, by a trusted third party. This approach limits the risk to data controllers of exposing trade secrets, while also providing an oversight mechanism for data subjects that can operate when explanations are infeasible or too complex for lay comprehension. The powers of Supervisory Authorities could be expanded in this regard. Alternatively, a European regulator could be created specifically for auditing algorithms, before (certifications) and/or after algorithms are being deployed.[306]

To sum up, there is no one-size-fits-all solution for the proposal of qualified transparency. It is precisely its case-by-case approach that will adequately determine the degree of transparency required according to the facts of a particular scenario; a personalized regulation in lieu of a standardized one.[307]

Furthermore, transparency (between business users) has been a requirement for technologies in the telecommunications sector for quite some time, and net neutrality frameworks highlight the importance of such issues.[308] The telecommunications market is a

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[305] "Where a very large online platform considers that the publication of information pursuant to paragraph 2 may result in the disclosure of confidential information of that platform or of the recipients of the service, may cause significant vulnerabilities for the security of its service, may undermine public security or may harm recipients, the platform may remove such information from the reports. In that case, that platform shall transmit the complete reports to the Digital Services Coordinator of establishment and the Commission, accompanied by a statement of the reasons for removing the information from the public reports." Article 33(3). Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC.

[306] Sandra Wachter, Brent Mittelstadt, and Luciano Floridi, "Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation," *International Data Privacy Law*, nº 2017 (December 28, 2016): 43-44, https://dx.doi.org/10.2139/ssrn.2903469.

[307] "The GDPR sets up a system of 'qualified transparency' over algorithmic decision-making that gives individuals one kind of information, and experts and regulators another. This multi-pronged approach to transparency should not be dismissed as lightly as some have done. There is an individual right to explanation. It is deeper than counterfactuals or a shallow and broad systemic overview, and it is coupled with other transparency measures that go towards providing both third-party and regulatory oversight over algorithmic decision making. These transparency provisions are just one way in which the GDPR's system of algorithmic accountability is potentially broader, deeper, and stronger than the previous EU regime." Kaminski, "Right to Explanation, Explained," 217.

[308] Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 Laying down Measures Concerning Open Internet Access and Amending Directive 2002/22/EC on Universal Service and Users' Rights Relating to Electronic Communications Networks and Services and Regulation (EU) No

heavily regulated one, whether considering contracts and tariffs or technical and logical interoperability of systems.[309] Why not subject search engines and other over-the-top (OTT) applications in this industry to some of these same fundamental transparency standards?

Algorithm auditing, which is a concept of transparency as seen through the lenses of regulators, can also be regarded as a pathway towards transparency and accountability, though on a procedural level: audits are a means to ensure accountability and transparency, not a substitute for them.[310] Although audits may very well face problems regarding measurement (different scales of data sets used in audits in comparison to the "real world" of performing algorithms) and the validity of their construct (since audit models themselves need designing and structuring in accordance with their goals), they serve as a useful tool to measure outcomes according to the inputs given to an algorithm.[311] Due to data sets in the real world also evolving and being in constant transformation, algorithmic audits ought to be an ongoing requirement for companies whose business models depend on computer codes.

Articles 13 and 15 of the GDPR assure that users have access to personal information being held by controllers, which subsequently can be used to contest and review computer system outputs, especially for the purpose of guaranteeing data access and correction.

When it comes to the issue of a computer program that is deemed inscrutable and that demonstrates undesirable or unruly behavior, the problem is thus not a lack of transparency, nor the inability of regulators to perform their duties due to technical reasons, but malpractice committed by the system's controller.[312] If there is a general duty of transparency, explanation, and abstaining from abuse of market dominance, algorithm developers ought to be held accountable for what they introduce to markets. Inadequate technologies, with unsatisfactory results and objectionable biases according to our current legal standards, should not be unaccountable.

The goal of online advertising (and of the platforms that support it, such as Google) is not only to drive users to make that first purchase, but also to keep their attention and

531/2012 on Roaming on Public Mobile Communications Networks within the Union (Text with EEA Relevance), 2015 O.J. (L *310*), http://data.europa.eu/eli/reg/2015/2120/oj/eng.

[309] Inge Graef and Peggy Valcke, "Exploring New Ways to Ensure Interoperability under the Digital Agenda," i*nfo* 16, no. 1 (January 7, 2014): 12, https://doi.org/10.1108/info-09-2013-0050.

[310] "Whether or not it makes the filterers' products more secure or efficient, keeping the code under tight wraps does do one thing: It shields these companies from accountability for the decisions they're making, because the decisions are difficult to see from the outside." Pariser, *Filter Bubble*, 230. See also: Busch, "Implementing Personalized Law," 328-329; Kaminski, "Right to Explanation, Explained," 205-206.

[311] Kroll, "Fallacy of Inscrutability," 8.

[312] Kroll, 4.

maintain their repeat behavior patterns. This fact matches with Tim Wu's idea of the industry of online advertisement being a business of "attention merchants," for which the main goal is to draw users' attention by means of "free services" and then sell it to advertisers.[313] As a consequence, businesses that thrive on attention increase their dependence on users' as an audience, which, in a competitive market, also means constantly devising new ways, contents, and stimuli to keep people online, including search engines.

As we have seen in previous sections of this examination, the effects of algorithmic bias in a search engine may range from economic impediments for competitors to the stifling of innovation, biased access to information, and even behavioral consequences for users that can instill in them certain shopping and content consumption patterns.[314] More importantly, these constitute significant issues regarding the rights of data subjects with possible legal consequences, according to the Guidelines on Automated Individual Decision-Making and Profiling of Article 29 of the Data Protection Working Party. This advisory body, replaced by the European Data Protection Board (EDPB), stated that "even where there is no change in their legal rights or obligations, the data subject could still be impacted sufficiently to require the protections" of Article 22 of the GDPR, systematically interpreted alongside Recital 71. It is important to note that "the decision must have the potential to: significantly affect the circumstances, behaviour or choices of the individuals concerned; have a prolonged or permanent impact on the data subject; or at its most extreme, lead to the exclusion or discrimination of individuals."[315]

The guidelines go on to consider whether advertising based on profiling can also significantly affect data subjects, which is my contention throughout this thesis.

> [I]t is possible that it may do, depending upon the particular characteristics of the case, including: the intrusiveness of the profiling process, including the tracking of individuals across different websites, devices and services; the expectations and

[313] Tim Wu, *The Attention Merchants: The Epic Scramble to Get inside Our Heads* (New York: Vintage Books, 2017), 16. See also: Katharine Kemp, "Concealed Data Practices and Competition Law: Why Privacy Matters," *European Competition Journal* 16, no. 2–3 (November 5, 2020): 632, https://doi.org/10.1080/17441056.2020.1839228.

[314] Kroll, "Fallacy of Inscrutability," 6. With respect to the consequences of algorithmic biases, Janssen asserts that: "Multiple issues such as bias, unfairness, or discrimination may arise during input (at the capture stage), in the analytics and outcome (the computation stage), and in any human intervention that is involved. It may arise in the final decision-making stage. It generally appears due to the absence of transparency and explicability." Heleen L Janssen, "An Approach for a Fundamental Rights Impact Assessment to Automated Decision-Making," *International Data Privacy Law* 10, no.1 (February 1, 2020): 82, https://doi.org/10.1093/idpl/ipz028. See also: Krebs et al., "Tell Me What You Know," 3.

[315] Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679," at 21. See also: Mazur, "Right to Access Information," 179-180; Borgesius, "Strengthening Legal Protection," 1574; Bayamlıoğlu, "Right to Contest Automated Decisions," 14; Kaminski, "Right to Explanation, Explained," 197-198.

> wishes of the individuals concerned; the way the advert is delivered; or using knowledge of the vulnerabilities of the data subjects targeted. [. . .] Automated decision-making that results in differential pricing based on personal data or personal characteristics could also have a significant effect.[316]

Even in the case of the free services business models such as Google's, there is effective behavioral influence and consequences regarding how users access information online.[317] Accountability should be embedded in the intrinsic responsibilities of conducting business with such high stakes with regard to user's personal data.[318] Just like environmental standards have been imposed in the past on companies that work with chemicals, we must understand that companies that work with personal data and access to information "should be required to audit their algorithms regularly for legality, fairness and accuracy."[319] This does not entail the algorithms being necessarily open source.

In order for internet application providers to be subject to some form of oversight with regard to the online relationships they intermediate, accountability is both supported by regulations, such as the GDPR and other directives, and enforcement of these directives, which entails the work of institutions and their power to implement such regulations.[320] Article 5 (2) of the GDPR, for instance, imposes the responsibility to demonstrate compliance with the GDPR on the controller of personal data.[321]

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[316] Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679," at 22. Regarding this matter, see also Mazur's analysis, which investigates the flexibility of interpretation allowed in the wording of the GDPR: "[D]oubts should be raised with regard to the understanding of the denotation 'similarly significantly affects'. The impact of the decision may differ depending on the individual conditions of, for example, economic or social character. The phrasing implemented in the GDPR can strengthen the role of discretion in the process of assessing the decision's character." Mazur, "Right to Access Information," 182.

[317] Zuboff, *Age of Surveillance Capitalism*, 377.

[318] Diakopoulos and Friedler, "How to Hold Algorithms Accountable." Additionally, according to Bloch-Wehba: "Viewing algorithmic governance through the lens of access law introduces a new perspective into the discussion of accountability and transparency for automated decision systems. Not only should algorithmic governance be accountable to those whom it affects, it should also satisfy, or at least not violate, fundamental values of open government that are core to our democratic system. These values cast doubt on the viability of the frameworks that have developed to limit the flow of critical information about algorithmic governance." Bloch-Wehba, "Access to Algorithms," 1306.

[319] O'Neil, *Weapons of Math Destruction*, 223. With regard to the procedures in favor of overall accountability, Kaminski suggests: "Beyond individual due process, the guidelines interpret 'suitable safeguards' to also include systemic accountability measures such as auditing and ethical review boards. These systemic accountability measures have dual meaning: They can be understood as bolstering individual rights by ensuring that somebody impartial is providing oversight in the name of individuals, or as providing necessary accountability over company behavior in a collaborative governance (private/public partnership) regime, as companies come up with and implement systems for preventing error, bias, and discrimination." Kaminski, "Right to Explanation, Explained," 205.

[320] Sylvia Lu, "Algorithmic Opacity, Private Accountability, and Corporate Social Disclosure in the Age of Artificial Intelligence," *Vanderbilt Journal of Entertainment & Technology Law* 23, no. 1 (Fall 2020): 127-128, https://scholarship.law.vanderbilt.edu/jetlaw/vol23/iss1/3.

[321] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016. See also: Borgesius, "Strengthening Legal Protection," 1581.

Whether by private entities or governmental agencies, proposing third party evaluation of algorithms seems to be a growing trend among academic experts on the subject.[322] Such an approach would be a way of dealing with the lack of transparency while allaying the legitimate concerns of the private sector regarding the protection of trade secrets involved in the provision of services that rely on the use of proprietary algorithms.[323]

A certain level of transparency is already required by today's regulatory status quo. Recital 24 of Regulation 2019/1150, of the European Parliament and of the Council, addresses the promotion of fairness and transparency for business users of online intermediation services.

> The ranking of goods and services by the providers of online intermediation services has an important impact on consumer choice and, consequently, on the commercial success of the business users offering those goods and services to consumers. Ranking refers to the relative prominence of the offers of business users or relevance given to search results as presented, organised or communicated by providers of online intermediation services or by providers of online search engines, resulting from the use of algorithmic sequencing, rating or review mechanisms, visual highlights, or other saliency tools, or combinations thereof. Predictability entails that providers of online intermediation services determine ranking in a non-arbitrary manner. **Providers should therefore outline the main parameters determining ranking beforehand, in order to improve predictability for business users, to allow them to better understand the functioning of the ranking mechanism and to enable them to compare the ranking practices of various providers**. The specific design of this transparency obligation is important for business users as it implies the identification of a limited set of parameters that are most relevant out of a possibly much larger number of parameters that have some impact on ranking. This reasoned description should help business users to improve the presentation of their goods and services, or some inherent characteristics of those goods or services. The notion of main parameter should be understood to refer to any general criteria, processes, specific signals incorporated into algorithms or other adjustment or demotion mechanisms used in connection with the ranking.[324]

[322] See: Lina Bouayad, Balaji Padmanabhan, and Kaushal Chari, "Audit Policies Under the Sentinel Effect: Deterrence-Driven Algorithms," *Information Systems Research* 30, no.2 (May 2019), https://doi.org/10.1287/isre.2019.0841; Kenneth C. Wilbur and Yi Zhu, "Click Fraud," *Marketing Science* 28, no. 2 (March-April 2009): 293-308, http://www.jstor.org/stable/23884264; Shea Brown, Jovana Davidovic, and Ali Hasan, "The Algorithm Audit: Scoring the Algorithms That Score Us," *Big Data & Society* (January 2021): 1-8, https://doi.org/10.1177/2053951720983865.

[323] "[T]here is little reason to assume that organizations will voluntarily offer full explanations covering the process, justification, and accuracy of the decision-making process unless obliged to do so. These systems are often highly complex, involve (sensitive) personal data, and use methods and models considered to be trade secrets. Providing explanations likewise imposes additional costs and risks for the organisation." Sandra Wachter and Brent Mittelstadt, "A Right to Reasonable Inferences: Re-thinking Data Protection Law in the Age of Big Data and AI," *Columbia Business Law Review* (2019): 503-504, https://doi.org/10.31228/osf.io/mu2kf.

[324] Recital 24. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on Promoting Fairness and Transparency for Business Users of Online Intermediation Services, 2019 O.J (L 186), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1150 (my boldface).

Professor Tim Wu, when discussing the competition context of the United States, believes that laws regulating markets are usually construed in such a broadly-worded manner (in order to provide resilience and adaptability during economic and technological transformation), that proper enforcement is essential for their effectiveness.[325] Such enforcement has to go beyond the penalties currently administered in the form of fines against Google and Facebook, for example, especially because the amounts of these fines, as high as they may seem to most, represent only a fraction of these internet giants' revenues: "It is a broken enforcement model, and we have black boxes to thank for much of this. People can't be outraged at what they can't understand."[326]

Wu reminds us that if it were not for a certain amount of regulation of Microsoft at the beginning of the 1990s, and if Bill Gates ideas of monopolistic power over the rising digital economy had prevailed, there would possibly be no firms like Google, Facebook, Amazon, and other, smaller, entrepreneurial endeavors beginning to arise and innovate to create the value in worldwide markets that these firms contribute today. According to Wu, competition enforcement was paramount to Silicon Valley achieving its global reach, as such enforcement protected an environment that fostered innovation and reduced barriers to entering the market.[327]

Explanation is a concept that depends on contextualization, not only of the parties involved in explaining an algorithm, but also of the purpose of the automated decision-making in which an algorithm had engaged.[328] If one compares the practices surrounding credit scoring to the right to explanation of automated decisions involving personal data, it is easier to understand how some level of explanation as to the reasoning behind some computer programs' decisions can be partially required by law, at least in service to establishing a better standard of transparency.[329] According to Joshua Kroll, context is crucial to effective transparency and, subsequently, accountability.

> [T]he value of explaining a tool's behaviour is tempered by the need to understand what must be explained to whom and what conclusions that party is meant to draw. Explanation is not an unalloyed good, both because it is only useful when it properly engages the context of the tool being explained and because explanations, at a technical level, do not necessarily provide understanding or improve the interpretability of a particular technical tool. Rather, explanations tend to unpack the

[325] Tim Wu, *The Curse of Bigness: Antitrust in the New Gilded Age* (New York: Columbia Global Reports, 2018), 50-51.
[326] Pasquale, *Black Box Society*, 213.
[327] Wu, *Curse of Bigness*, 100.
[328] Chari et al., "Directions for Explainable Knowledge-Enabled Systems," 5.
[329] Pasquale, 149.

> mechanism of a tool, focusing narrowly on the way the tool operated at the expense of contextualizing that operation. Explanations risk being 'just-so' stories, which lend false credence to an incorrect construct.[330]

An explanation is relational insofar as it demands "what must be explained to whom and what conclusions that party is meant to draw."[331] Different people, with different levels of understanding, will subsequently require different types of explanation. The more well-versed in the functionalities of an algorithm a person is, the easier it is to foster understanding.

Moreover, the necessary level of interpretability of the information provided to explain how an algorithm works can vary greatly when it comes to meeting users' needs. Adequate transparency may require something far beyond simply revealing source codes.[332] In fact, in some cases, the verification of a causal relationship between inputs and outputs of an algorithm, given a particular data set, might be more telling than the source code itself. "Transparency doesn't mean only that the guts of a system are open for public view. […] it also means that individual users intuitively understand how the system works. And that's a necessary precondition for people to control and use these tools."[333]

We must examine the possibly unwarranted insistence that trade secrets should be an **inscrutable** intangible asset. If one compares trade secret limitations with the ones imposed on patents and copyrights, it becomes fairly apparent why algorithmic opaqueness is a central focus of the present analysis.[334] "It may not be possible to stop firms' domination in developing algorithms in the next century, but it is crucial to ensure that algorithms are harmless by requiring more transparency to mitigate algorithmic opacity."[335]

Alongside transparency and in order to put this principle into practice, **accountability** is a key factor in the regulation of the use of algorithms. In a definition that stems from the principle of responsibility, the "Glossary of Key Terms and Notions About Internet Governance" defines accountability in the context of internet governance as "the expectation of account-giving and the assumption that states and actors take responsibility and blame for

[330] Kroll, "Fallacy of Inscrutability," 3. See also: Helleringer and Sibony, "European Consumer Protection," 625-626.
[331] Kroll, 3. Regarding the necessity of a relational approach to algorithmic explanations, Chari et. al. assert that "different situations, contexts, and user requirements demand explanations of varying complexities, granularities, levels of evidence, presentations, etc." Chari et al., "Directions for Explainable Knowledge-Enabled Systems," 14.
[332] Perel and Elkin-Koren, "Black Box Tinkering," 188.
[333] Pariser, *Filter Bubble*, 231.
[334] Perel and Elkin-Koren, 194.
[335] Lu, "Algorithmic Opacity," 158.

their actions, decisions, and policies. It often encompasses the obligations of reporting and transparency."[336]

Generally speaking, although there are direct and indirect incentives from public entities, the current motor for innovation in algorithmic research stems predominantly from the private sector and the potential for the developments that come from such research to produce highly scalable revenues. It is precisely the pressures that the profit-driven market exerts on research and development (in a dynamic referred to as the "starvation economy") that both increases the number of innovation cycles and foments the need for secrecy and lack of transparency to protect companies' competitive advantages. If algorithms were developed solely by public entities according to open-source parameters and rules of procurement, there would probably be more transparency and, consequently, accountability, but a serious lack of incentives to innovate.[337]

The obscurity of Google's black box has allowed for a lack of accountability over the last twenty years or so of its history when it comes to providing internet search services.[338] Since an overwhelmingly significant part of Google's business model is supported by a complex set of algorithms protected as trade secrets, the company has been able to use a veil of secrecy to shield itself from expectations regarding responsibility, reporting, and transparency.[339] In addition to this veil of secrecy, Google covers its practices in an extra layer of protection with claims of objectivity and neutrality.[340]

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[336] "Glossary of Key Terms," 25.

[337] "Algorithmic selection provides the basis for service innovations and business models and is one of the new sources of growth in the domain of (big) data-driven innovations." Saurwein, Just, and Latzer, "Governance of Algorithms," 43.

[338] "Unless we can understand the techniques employed and hold those who employ them accountable, there is a chilling prospect that whoever owns the data also owns the future, because they can hack the software—and this might just be enough to make a difference. Meet the new boss. Same as the old boss. But now armed with algorithms and big data." Jamie Bartlett, *The People Vs Tech: How the Internet Is Killing Democracy (and How We Save It)* (London: Penguin Random House, 2018), 101.

[339] "The power to include, exclude, and rank is the power to ensure which public impressions become permanent and which remain fleeting. That is why search services, social and not, are 'must have' properties for advertisers as well as users. As such, they have made very deep inroads indeed into the sphere of cultural, economic, and political influence that was once dominated by broadcast networks, radio stations, and newspapers. But their dominance is so complete, and their technology so complex, that they have escaped pressures for transparency and accountability that kept traditional media answerable to the public." Pasquale, *Black Box*, 61.

[340] "Google has conditioned users to expect that its search results are presented in the order of their likely relevance. In reality, Google's search results are far from neutral. To neutralize the growing threat of vertical sites, Google now displays non-algorithmic results at the top or in the middle of the results page in a manner that does not clearly flag for consumers that these results are placed there artificially by Google—frequently with photographs, maps and graphics that draw user attention and that link to Google's own pages." Fairsearch, *Google's Transformation from Gateway to Gatekeeper: How Google's Exclusionary and Anticompetitive Conduct Restricts Innovation and Deceives Consumers*, 2011, 19, http://www.fairsearch.org/wp-content/uploads/2011/10/Googles-Transformation-from-Gateway-to-Gatekeeper.pdf. Pierre Lévy also refers to the lack of neutrality in the virtualization of human relations, which he feels is

It should also be noted that accountability is a principle that places the burden of safeguarding against liability in the case of breaches of rules and regulations on either organizations or individuals.[341] Identifying the responsible parties and holding them accountable depends largely on the context of the algorithmic systems in question, the level of risk involved (to individuals, business, markets, etc.), and the feasibility of introducing human analysis of automated decisions, at least during appeal processes.[342]

3 Multisectorial Interests Surrounding Google: A Catalyst for Disputes

One of the reasons why Google's search engine makes for such a fascinating object of study is its nodal nature on the internet nowadays. The market share achieved over the two last decades certainly helps, but what greatly contributes to its relevance is the fact that Google lies on an intersection of multiple interests online. Broadly speaking, Google itself, its consumers, businesses, and governments alike have stakes in the way Google's search engine performs its functions and influences users' behavior.

Most consumers of Google's search engine seek quick access to qualified information; while a considerable amount of businesses users aim to appear (by means of either sponsored or non-sponsored ads) among the top results of the search results page as relevant service and product providers. Governments (through different branches, competition authorities, etc.) wish to safeguard the public interests of their citizens and markets both by enforcing individual and collective rights such as freedom of expression,

neither inherently good, bad, nor neutral but what people make of it, being a process characterized by the complexification and diversification of human experiences. Pierre Lévy, *Qu'est-ce que le virtuel?* (Paris: La Découverte, 1998), 10.

[341] "OECD Principles on Artificial Intelligence." See also: Lu, "Algorithmic Opacity," 128-129.

[342] "Human-in-the-loop" recommendations for guaranteeing a right to explanation and eventual review of automated decisions offer possible solutions and will be further discussed in this chapter. See also: Janssen, "An Approach for a Fundamental Rights Impact Assessment."

access to information, protection from discrimination, and consumer choice, and by allowing for innovation to be fostered by competition and intellectual assets protection.[343]

Meanwhile, Google is faced with the conundrum of achieving a delicate balance between following competition rules and regulations, safeguarding users' individual and collective rights, and maintaining its freedom to conduct the very successful business it created and has perfected over the years, all while meeting the need to maintain its most significant source of income with its actual clients, the sponsors of ads. Google's "transactions create consumer and producer surplus, in addition to jobs and tax revenue."[344]

Some analyses will go as far as to say that Google gradually transitioned from being a **gateway** to information online,[345] which was its initial purpose, to being a **gatekeeper** of information online, which would account for some of its recent practices regarding content selection, the manipulation of results, and the provision of biased information to favor its own parallel services.[346] Other prominent platforms such as Facebook have also adopted this

[343] "The Justice Department faced similar questions of social costs and benefits with AT&T in the 1950s. AT&T had a monopoly on phone services and telecommunications equipment. The government filed suit under antitrust laws, and the case ended with a consent decree that required AT&T to release its patents and refrain from expanding into the nascent computer industry. This resulted in an explosion of innovation, greatly increasing follow−on patents and leading to the development of the semiconductor and modern computing. We would most likely not have iPhones or laptops without the competitive markets that antitrust action ushered in." Christopher Hughes, "It's Time to Break Up Facebook," *The New York Times*, May 9, 2019, Opinion, https://www.nytimes.com/2019/05/09/opinion/sunday/chris-hughes-facebook-zuckerberg.html. See also: Roger McNamee, "Rein in Facebook Like We Did AT&T," *Financial Times*, April 27, 2018, https://www.ft.com/content/942020c6-4936-11e8-8c77-ff51caedcde6; Tae Kim, "Weighing the Antitrust Case Against Google, Apple, Amazon, and Facebook," *Barron's*, June 7, 2019, Economy and Policy, https://www.barrons.com/articles/weighing-the-antitrust-case-against-google-apple-amazon-and-facebook-51559952100; Mark Robinson, "Big Tech Regulators Can Learn from the AT&T Break-Up," *Investors Chronicle*, January 14, 2021, https://www.investorschronicle.co.uk/education/2021/01/14/lessons-from-history-big-tech-regulators-should-consider-the-at-t-break-up/; Aurelien Portuese, "Beyond Antitrust Populism: Towards Robust Antitrust," *Economic Affairs*, 40, no. 2 (June 29, 2020): 237– 258, https://doi-org.ezproxy.ulb.ac.be/10.1111/ecaf.12401.

[344] Jay Matthew Strader, "Google, Monopolization, Refusing to Deal and the Duty to Promote Economic Activity," *IIC - International Review of Intellectual Property and Competition Law* 50, no. 5 (June, 2019): 560, https://doi.org/10.1007/s40319-019-00818-9. It is also possible to envisage government interests in seeking new ways to tax tech companies due to their de-territorialized nature and forum shopping practices, which include incorporating and establishing business in tax havens. Such is the case of France, which has instituted a specific tax for technology companies. See: Ruth Mason and Leopoldo Parada, "The Legality of Digital Taxes in Europe," *Virginia Tax Review* 40, no. 1 (Fall 2020): 175-218, https://heinonline.org/HOL/LandingPage?handle=hein.journals/vrgtr40&div=7&id=&page=.

[345] Fairsearch, *Google's Transformation*.

[346] This economic rearrangement has to do with the primary purpose of collecting data as a maximization of extraction processes, regardless of the consequences and possible harm to users: "So far, the greatest challenge to radical indifference has come from Facebook and Google's overreaching ambitions to supplant professional journalism on the internet. Both corporations inserted themselves between publishers and their populations, subjecting journalistic 'content' to the same categories of equivalence that dominate surveillance capitalism's other landscapes." Zuboff, *Age of Surveillance Capitalism*, 473. See also: Krebs et al., "Tell Me What You Know," 3.

"publisher" mode of operation instead of acting as simple providers of social network services, due to their increased content regulation and oversight.

Additionally, it would be a mistake to separate these disputes and interests online from the offline environment.[347] As stated earlier, the fact that "Google still exerts significant influence over offline markets due to the prevalence of online search prior to purchase" is bolstered by the association of its search engine with parallel applications that have concrete effects on the world beyond the internet.[348] Furthermore, its price comparison tools inform offline purchases, impact the hiring of services, influence public opinion, and persuade users in other areas about which they search for information.[349] Therefore, the automated decisions behind Google search algorithms significantly affect both its users and the digital ecosystem surrounding it.

For the purposes of this analysis, there is a primary distinction to be drawn between Google's keyword search engine and these parallel applications. The paid results ranking mentioned here (currently Google's primary source of revenue), which appear at the beginning of any search results page (see figure 2, chapter 1), are so far only used in the former and not with many other search-dependent content services, such as Google Maps, Google Scholar, and Google Flights, to name a few examples. This is why the focus of the present analysis centers on Google's main platform (its search engine) due to the concerns prompted by its sponsored results, even though this logic of sponsored results might eventually be replicated in parallel applications.

As a consequence of the aspects mentioned above, one can observe that: i) the search results of other Google applications may appear to be more naturally-driven in comparison to Google's primary search engine; ii) there is a higher possibility that advertisers will appear on

[347] "For example, Google paid MasterCard millions of dollars for its ability to track if Google's online ads led to purchases in physical stores (Bergen and Surane, 2018). Google's program, known as 'Store Sales Measurement,' claims to have access to 'approximately 70 percent of U.S. credit and debit cards through partners' without gathering personally identifiable information. Google can then 'anonymously match these existing user profiles' to purchases made in the physical stores (Bergen and Surane, 2018)." Moritz Büchi et al., "The Chilling Effects of Algorithmic Profiling: Mapping the Issues," *Computer Law & Security Review* 36 (April 2020): 5, https://doi.org/10.1016/j.clsr.2019.105367.

[348] Strader, "Google, Monopolization," 563. See also: Bayamlıoğlu, "Right to Contest Automated Decisions," 3-4.

[349] "Google also would impede technical development by intentionally confining consumer choice, keeping consumers from purchasing products and services that featured characteristics on which rivals performed objectively better than the top ten organic listings. Lower consumer surplus quantifies this harm when it represents inferior quality. Businesses whose ranking Google regularly displaced inefficiently from the first page could not compete on the merits and would have insufficient incentives to continue to produce the best products online." Strader, 565.

the first page of results for a query, provided they are willing to pay for it; and iii) automated decisions regarding the ranking of results provided by Google's search engine application become even more relevant to the concerns of internet governance in this scenario due to the fact that the consequences of such decisions on consumer choice and the flow of online traffic are difficult to overcome except in the case of companies that are willing and able to pay to have their products and services displayed. For Google, it is even more profitable to foster this environment of competition for the top positions on its results page and to reduce the non-sponsored reach of businesses because this may drive possible sponsors to pay for ads in order to become visible to their target audiences.[350]

This confluence of factors creates a scenario characterized by competition, clashes between a variety of interests, and high expectations for profit, all centered around a platform with visible and incontestable monopolistic characteristics. The monopolization of online search, along with a perception of neutrality among users, enables Google to potentially undermine competitors and manipulate consumers' choices according to its own interests. [351]

Furthermore, Google's practices can harm its competitors by raising the costs of conducting businesses online. If they are demoted in the ranking of non-sponsored results but still want to appear to users who perform queries, competitors need to pay for advertisements on Google's very own platform.

> Google wins three different ways. First, Google keeps more users on its pages, where it can continue to make money off of them. Second, Google reduces traffic to its vertical search rivals, not through competition on the merits, but through abusing its dominance in search. And third, Google earns still more revenue as those rivals are forced to spend more for paid search, in order to re-acquire some of that lost traffic. This strategy is good for Google, but bad for consumers.[352]

[350] Facebook adopted the same strategy, gradually diminishing the reach of its non-sponsored posts, especially for business pages (in comparison to individual users' posts, for example), in order to incentivize businesses to sponsor their ads and posts on the social network. See: Cherniece J. Plume and Emma L. Slade, "Sharing of Sponsored Advertisements on Social Media: A Uses and Gratifications Perspective," *Information Systems Frontier* 20 (January 2018): 471–483, https://link.springer.com/article/10.1007%2Fs10796-017-9821-8; Matthew T. Binford et al., "Invisible Transparency: Visual Attention to Disclosures and Source Recognition in Facebook Political Advertising," *Journal of Information Technology & Politics* 18, no. 1 (August 14, 2020): 70-83, https://www.tandfonline.com/doi/abs/10.1080/19331681.2020.1805388?tab=permissions&scroll=top.
[351] "Data collected about a consumer without their knowledge can be used to discriminate against the consumer on the basis of their online and offline behaviour. [. . .] Data collected in one context may be used for completely unrelated purposes, including automated decision-making." Kemp, "Concealed Data Practices," 649-651. See also: Mazur, "Right to Access Information," 179-180; Büchi et al., "Chilling Effects of Algorithmic Profiling," 5-6.
[352] Fairsearch, *Google's Transformation*, 39.

Moreover, these practices also provide abundant opportunities for Google to increase its profits by raising advertisement fees. As explained before, its ad placement tool operates on a bidding rationale.[353] Therefore, the more advertisers Google drives towards the sponsored portion of its search result page, the more money it makes out of the bidding process, especially in a virtually monopolistic setting. Consequently, companies end up spending more money to reach their customers, and these costs are probably distributed among their chain of production in the form of higher prices for products and services.[354]

To a large extent, one of the worst possible negative impacts of Google's practices relates to innovation, as new and less established sites will face more significant barriers to entering their respective online markets, which nowadays often entails being seen by users on Google's applications.[355] One can hardly imagine an online business succeeding in most relevant markets today without a presence on Google's search results page and, preferably, a high-ranking one.

> Organic Search remains the dominant source of trackable web traffic and in a nearly unassailable dominant position as a channel. Paid Search continues to grow. Social Media, driven by the rise of Facebook, Twitter, and Instagram, garners significant mindshare and attention but contributes on average 1/3 as much traffic as Paid Search and just 1/10 as much as Organic Search.[356]

Notwithstanding its control of this multisectorial online territory of dispute, Google has had to conform to and comply with increasing regulation of the online environment over the last years. Within the EU context, attempts to reduce barriers to competition and violations of users' rights have taken, for the most part, the form of substantial fines against

[353] See: Damien Geradin and Dimitrios Katsifis, "'Trust Me, I'm Fair': Analysing Google's Latest Practices in Ad Tech from the Perspective of EU Competition Law," *European Competition Journal* 16, no. 1 (January 2, 2020): 54, https://doi.org/10.1080/17441056.2019.1706413.
[354] Fairsearch, *Google's Transformation,* 39.
[355] "BrightEdge Research found that Organic and Paid Search dominate websites' traffic in 2019 - 68% of all trackable website traffic is sourced from Organic and Paid Search, vastly exceeding all other channels, including Display and Social Media. The Organic Search figure at 53% is up from the 51% found in the 2014 research, the first year that BrightEdge Research conducted the analysis." BrightEdge, *Channel Performance Report*, 2019, 3, https://www.brightedge.com/resources/research-reports/content-optimization.
[356] BrightEdge, *Organic Search Is Still the Largest Channel*, 2018, 2, https://www.brightedge.com/resources/research-reports/organic-search-still-largest-channel-2017.

Google,[357] injunctions to halt its illegal conduct, and the implementation of comprehensive legislation in lieu of the 95/46 Directive[358] such as the General Data Protection Regulation. Users and businesses affected by anti-competitive behavior will also be able to seek damages in the courts of member states through civil actions as per the European Union Antitrust Damages Directive.[359]

Given the circumstances of this legal scenario, one may argue that data protection can be considered one instrument in the regulators' toolbox for dealing with the growing power, relevance, and autonomy of tech giants in society, especially when provided for by regulations with concrete and immediate effects, such as the GDPR.

Data protection standards, such as transparency and explainability, also have secondary effects on competition standards in digital markets due to fairer relations between businesses and how consumers' personal data are used to fuel business models. According to José Tomás Llanos, "privacy protection can serve as a nonprice parameter of competition."[360] Thus, data protection acts as a proxy for the re-evaluation of the safeguarding of intangible assets such as trade secrets and as a means to better establish competition standards. In addition to its effects on competition, its importance to freedom of expression and access to information online will be further explored in the following chapters.

[357] European Commission, "Antitrust: Commission Fines Google €1.49 Billion." See also: Ioannis Kokkoris, "The Google Case in the EU: Is There a Case?" *The Antitrust Bulletin* 62, no. 2 (June 2017): 313-333, https://doi.org/10.1177/0003603X17708362; Portuese, "Beyond Antitrust Populism," 237-58; Siva Vaidhyanathan, "Billion Dollar Fines Can't Stop Google and Facebook. That's Peanuts for them," *The Guardian*, Opinion, July 26, 2019, https://www.theguardian.com/commentisfree/2019/jul/26/google-facebook-regulation-ftc-settlement.
[358] Directive 95/46/EC, of the European Parliament and of the Council on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data, 1995, O.J. (L 281), https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:HTML.
[359] Directive 2014/104/EU, of the European Parliament and of the Council on Certain Rules Governing Actions for Damages under National Law for Infringements of the Competition Law Provisions of the Member States and of the European Union, 2014, O.J. (L 349), http://data.europa.eu/eli/dir/2014/104/oj/eng.
[360] José Tomás Llanos, "A Close Look on Privacy Protection as a Non-Price Parameter of Competition," *European Competition Journal* 15, no. 2–3 (September 2, 2019): 227, https://doi.org/10.1080/17441056.2019.1644577.

4 Convention 108 and the Paradigm Shift Occasioned by the GDPR

Open for signature since 1981, the Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data, also known as Convention 108, was one of the first treaties within the European context concerned with automated decisions performed by computer programs and algorithms.[361] According to Danilo Doneda, it is "the initial reference point to the European model of data protection, especially because it stems from the reflections and debates on the subject in the European space at the time."[362]

It should be mentioned that this international agreement was enacted under the framework of the Council of Europe, an organization focusing on the protection of human rights, democracy, and the rule of law on the continent, which does not pertain to the administrative and political structure of the European Union. This distinction is relevant to understanding the different structures to which each treaty belongs, as well as the political, administrative, and judicial repercussions of the laws they establish.[363] Convention 108, for instance, allows countries beyond European Union Members and European States to sign. Such signees currently include Argentina, Azerbaijan, Mexico, Tunisia, and Uruguay, among others. Furthermore, since its enactment, the convention has been modernized by several amendments and protocols, and the most recent version is now known as the Modernised Convention for the Protection of Individuals with regard to the Processing of Personal Data, or Convention 108+.[364]

It is no coincidence that the drafting of Convention 108+ was adopted on May 18, 2018, a week before the GDPR came into force. The convention was opened for signatures in

[361] Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data and Additional Protocols, January 28, 1981, ETS 108, https://www.coe.int/en/web/data-protection/convention108-and-protocol.
[362] Danilo Doneda, *Da privacidade à proteção de dados pessoais: Fundamentos da lei geral de proteção de dados*, 2ª ed. (São Paulo: Thomson Reuters Brasil, 2019), 196 (my translation). See also: Borgesius, "Strengthening Legal Protection," 1577-1578; Cécile de Terwangne, "Council of Europe Convention 108+: A Modernised International Treaty for the Protection of Personal Data," *Computer Law & Security Review* 40 (April 2021), https://doi.org/10.1016/j.clsr.2020.105497.
[363] Future research may provide a richer analysis of jurisprudence, possibly including an investigation of the decisions of the European Court of Human Rights (ECHR) and its previous interpretations of Convention 108 clauses.
[364] Consolidated Text of the Modernised Convention for the Protection of Individuals with Regard to the Processing of Personal Data, May 18, 2018, https://search.coe.int/cm/Pages/result_details.aspx?ObjectId=09000016807c65bf.

October 2018 and, if all parties consent to its text, it may even come into force before October 2023. Moreover, it has provisional in-force status if consenting parties declare so, which means "it is therefore realistic to expect 108+ to be in force by 2023, and possibly to have some reciprocal effects before then."[365]

The goal of the Council of Europe was to update the current treaty according to the new set of standards launched by the GDPR, in addition to providing an alternative that could easily be "globalized" by the adoption of non-European members.[366] On the one hand, even though the GDPR aims to **globalize parameters of personal data protection** through its adequacy demands, it is still very much entrenched in the organizational structure of the European Union.[367] On the other hand, Convention 108 (and its additional Protocol, Convention 108+) may be adopted by non-European members, have observing parties, and have other international repercussions.

Convention 108+ broadens the scope of protection provided to data subjects, either by virtue of its non-restrictive lack of exceptions or by significantly strengthening the wording of users' rights and the obligations imposed on data controllers. For example, Article 9 of the Modernised Convention explicitly states that "every individual shall have a right: to obtain, on request, knowledge of the reasoning underlying data processing where the results of such processing are applied to him or her."[368] This section of Article 9, which can be interpreted as establishing a form of the right to explanation for data subjects, is in sharp contrast with Article 22 and Recital 71 of the GDPR.

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[365] Graham Greenleaf, "'Modernised' Data Protection Convention 108 and the GDPR," *Privacy Laws & Business International Report* 22-3, no. 154 (July 20, 2018): 1, https://ssrn.com/abstract=3279984.
[366] "While the GDPR allows derogations by member states to fifty different provisions, enabling them to fit their local needs by adjusting certain parameters, the crux of it remains a Brussels-controlled regulation with extraterritorial effect." Roxana Radu, *Negotiating Internet Governance* (Oxford University Press, 2019), 168.
[367] It is worth mentioning that the GDPR explicitly recognizes the relevance of Convention 108 for the purposes of verifying adequacy in other jurisdictions. This reinforces the importance of a globalization effort to further regulate the protection of personal data online. Recital 105 of the GDPR states that, "Apart from the international commitments the third country or international organisation has entered into, the Commission should take account of obligations arising from the third country's or international organisation's participation in multilateral or regional systems in particular in relation to the protection of personal data, as well as the implementation of such obligations. In particular, the third country's accession to the Council of Europe Convention of 28 January 1981 for the Protection of Individuals with regard to the Automatic Processing of Personal Data and its Additional Protocol should be taken into account." Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016. See also: Annegret Bendiek and Magnus Römer, "Externalizing Europe: The Global Effects of European Data Protection," *Digital Policy, Regulation and Governance* 21, no. 1 (January 14, 2019): 37-38, https://doi.org/10.1108/DPRG-07-2018-0038.
[368] Consolidated Text of the Modernised Convention for the Protection of Individuals with Regard to the Processing of Personal Data, May 18, 2018.

Article 22 of the GDPR provides several exceptions to and conditions for the implementation of such a right.

> Article 22 (Automated individual decision-making, including profiling): 1. The data subject shall have the right **not to be subject to a decision based solely on automated processing**, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her. 2. Paragraph 1 shall not apply if the decision: (a) is necessary for entering into, or performance of, a contract between the data subject and a data controller; (b) is authorised by Union or Member State law to which the controller is subject and which also lays down suitable measures to safeguard the data subject's rights and freedoms and legitimate interests; or (c) is based on the data subject's explicit consent.[369]

These exceptions related to automated individual decision-making allow for a broad interpretation of what constitutes the legitimate interests of data controllers, as well as users' explicit consent.[370] The concept of online consent often elicits criticism due to users' inability to read and understand terms and conditions, legal wording, and even the sheer number of requests for consent necessary to access information online.[371]

Also, if compared to the GDPR, Convention 108 can be considered more protective of individuals in certain aspects, since it provides easier thresholds to demand for explainability.

> Under Convention 108, people have a right "to obtain, on request, knowledge of the reasoning underlying data processing where the results of such processing are applied to him or her." Hence, Convention 108 does not limit such a right to decisions with legal or significant effects.[372]

Furthermore, there is much uncertainty regarding the effective application of the provisions from Recital 71, since it is not in the actual operative body of the GDPR's articles.[373] "While the authority of the Recital is nonbinding under EU law, it nonetheless

[369] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016. See also: Bayamlıoğlu, "Right to Contest Automated Decisions," 3-4 (my boldface).
[370] Legitimate interest in conducting their business and protecting their trade secrets, for example.
[371] Wanda Presthus and Hanne Sørum, "Consumer Perspectives on Information Privacy Following the Implementation of the GDPR," *International Journal of Information Systems and Project Management* 7, no. 3 (2019): 19–34, https://doi.org/10.12821/ijispm070302.
[372] Borgesius, "Strengthening Legal Protection," 1580-1581.
[373] "If a right to explanation is intended as suggested in Recital 71, it should be explicitly added to a legally binding Article of the GDPR. Such an implementation should clarify the scope of applicability of the right with regard to the impact of Article 22 interpreted as a prohibition or right to object. Alternatively, Member States

provides a critical reference point for future interpretations by data protection agencies as well as for co-determinations of positive law that may be made by legislators, courts, or other authorities."[374] Researchers have extensively analyzed the need for stronger operative provisions in addition to the ones put into place by the GDPR, in order to guarantee a right to explanation effectively.

> Despite claims to the contrary, a meaningful right to explanation is not legally mandated by the General Data Protection Regulation. Given the proliferation of automated decision-making and automated processing of data to support human decision-making (i.e. "not solely"), this is a critical gap in transparency and accountability. The GDPR appears to give strong protection against automated decision-making but, as it stands, the protections may prove ineffectual. [. . .] Any future right to explanation will further be constrained by the definition of "automated decision-making" in Article 22(1), which is limited to decisions based solely on automated processing with legal or similarly significant effects for the data subject. As it stands, a meaningful right of explanation to the rationale and circumstances of specific automated decisions is not forthcoming.[375]

Application providers will most likely resist unveiling exactly how their algorithms work in court in the name of a right to explanation of automated decisions. So far, there have been restrictive interpretations of "personal data" as an intangible concept (regarding Directive 95/46),[376] and a tendency toward an expansion of the definition of this concept is expected to appear in the forthcoming rulings on the GDPR.[377] Currently, for example, the

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can be encouraged to implement law on top of the GDPR that requires an explanation of specific decisions." Wachter, Mittelstadt, and Floridi, "Why a Right to Explanation," 41. See also: Bryan Casey, Ashkon Farhangi, and Roland Vogl, "Rethinking Explainable Machines: The GDPR's Right to Explanation Debate and the Rise of Algorithmic Audits in Enterprise," *Berkeley Technology Law Journal* 34, no. 1 (2019): 149, https://doi.org/10.15779/Z38M32N986.

[374] Casey, Farhangi, and Vogl, "Rethinking Explainable Machines," 157.

[375] Wachter, Mittelstadt, and Floridi, "Why a Right to Explanation," 39.

[376] "To define 'personal data' restrictively is to limit the scope of data protection at large, both in respect of automatically processed data and in respect of data held in manual files, and so is of key importance. It is also at variance with the Information Commissioner's earlier guidance on interpretation of the term 'personal data'. It thus goes to the heart of data protection law and substantially affects its scope and application. Part of the Court of Appeal's reasoning for its restricted interpretation of the meaning of 'personal data' is related to the purpose of the Council of Europe's 1981 Convention and the Directive's intention – recognised by the Court of Appeal as faithfully reproduced in the 1998 Act – to enable an individual to obtain his personal data (meaning information about himself) from a data controller's filing system, whether computerised or manual, and to check whether the data controller's processing unlawfully infringes the individual's right to privacy." Simon Chalton, "The Court of Appeal's Interpretation of 'Personal Data' in Durant v FSA: A Welcome Clarification, Or a Cat Amongst the Data Protection Pigeons?" *Computer Law & Security Review* 20, no. 3 (May-June 2004): 175-176, https://doi.org/10.1016/S0267-3649(04)00033-0.

[377] Article 4(1) defines "personal data" as follows: "'[P]ersonal data means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person." Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.

right of access can be restricted by the laws of member states or when the rights or freedoms of others are concerned, subject to a proportionality test.[378] Thus, nowadays, the Court of Justice of the European Union believes that the actual protection afforded by the right of access (and, most likely, by extension, other data protection rights) must be determined contextually.

In order to balance these characteristics of the legal framework recently set out by the GDPR and the scope of interpretation regarding users' fundamental rights, national courts and the Court of Justice of the European Union will have to address the need to appropriately counterbalance the principle of transparency with data controllers' legitimate interest in maintaining their trade secrets and not disclosing substantial aspects of their business models while explaining the reasoning of their automated decisions to users, all in accordance with EU law principles.[379] Only time will tell how the conflict between the need for transparency (a core principle of the GDPR and Convention 108+) and the black box protections surrounding algorithmic-based business models' trade secrets will be resolved.[380]

Ever since these pieces of regulation were enacted, from Convention 108 to the GDPR and Convention 108+, there is no denying that they have made rapid strides towards what can only be described as a new digital scenario. As stated in the previous chapter, surveillance capitalism has reshaped the need for regulation online due to the sophisticated mechanisms employed by this business model. As a result, not only did European states and the European Union deem necessary the protection of personal data through legislation and

[378] "Thus, under Article 13(1)(g) of Directive 95/46, Member States may adopt legislative measures to restrict the scope of the obligations and rights provided for in, inter alia, Article 6(1) and Article 12 of that directive, when such a restriction constitutes a necessary measure to safeguard the rights and freedoms of others." Case C-434/16, Peter Nowak v. Data Protection Commissioner, 2017 E.C.R. § 60. See also: Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679," at 26-27.

[379] "Although disclosures do not guarantee good algorithmic behavior, they will incentivize firms to develop accountable algorithms. If the law requires algorithmic disclosures, firms will have a substantial incentive to restructure their environments to monitor the operating results and develop sustainable strategic management of their machine-learning algorithms. Because disclosure makes it easier for the public to detect firms' illegal or unethical behaviors and compare their performances, firms will face more surveillance and strive harder to reach public standards in a competitive AI market. To avoid liability and risking their reputation, firms will avoid behaviors that pose risks to the larger public." Lu, "Algorithmic Opacity," 155.

[380] Article 2: "For the purposes of this Directive, the following definitions apply: (1) 'trade secret' means information which meets all of the following requirements: (a) it is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question; (b) it has commercial value because it is secret; (c) it has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret." Directive (EU) 2016/943, of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) against Their Unlawful Acquisition, Use and Disclosure, 2016 O.J. (L 157), http://data.europa.eu/eli/dir/2016/943/oj/eng.

the regulation of online market competition, they also have set a global standard that is fostering policy changes around the world.

After the negotiation process of the GDPR was concluded, and before the regulation came into force, several countries followed suit in the enactment of similar pieces of legislation.[381] At the same time, companies throughout the world took a special interest in complying with its provisions in order to maintain business with the European market, even if they were not directly bound by the regulation.[382] The extraterritorial effects of the GDPR can be seen in several fora, but were also purposefully included in the bill in order to avoid the cherry-picking of jurisdictions and recourse to jurisdictional havens.[383] Convention 108+ is prompting some of the same globalizing effects.[384]

One of the things this paradigm shift has done is to reinforce the idea that the political capital of European legislation can influence jurisdictions worldwide in a way that promotes true globalization of data protection. Another thing it has done is to motivate concrete policy transformations within the private sector among companies with immense global reach (such as Google) given its importance in the international digital market, prompting changes in the practices deriving from business models that employ the use of personal data and automated decision processes.

Most recently, a controversial decision from the Court of Justice of the European Union regarding Directive 95/46 (the Directive that previously regulated data protection in the European Union) addressed, among other issues, the topic of Google's de-referencing of results on its search engine to honor data subjects' "right to be forgotten." One of the final provisions of the judgment stated that it was the prerogative of member states to decide if the

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[381] Such is the case of Argentina, South Korea, Australia, Japan, Thailand, and Brazil, which passed data protection laws importing several elements of the GDPR, including a version of the right to explanation of automated decisions. In Brazil, this law is known as Personal Data Protection General Law. Lei Geral de Proteção de Dados Pessoais, Lei No. 13.709, de 14 de Agosto de 2018, http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/Lei/L13709.htm. Also called "the Brussels Effect," the exporting of privacy protection standards across the globe promotes extraterritorial compliance with the GDPR through its adequacy standards. Casey, Farhangi, and Vogl, "Rethinking Explainable Machines," 183-184.

[382] "[A]s is true at the national level, the path of least resistance for many companies will likely entail treating the GDPR as the new 'gold standard.' Ultimately, the Regulation enforcement agencies will effectively dictate the way companies handle all personal data, regardless of geography. While the precise contours of this new gold standard may be continuously revised, it is now clear that it includes a muscular 'right to explanation' with sweeping implications for companies and countries throughout the world." Casey, Farhangi, and Vogl, 187.

[383] Diego C. Machado et al., *GDPR and Its Effects on the Brazilian Law: First Impressions and a Comparative Analysis*, Instituto de Referência em Internet e Sociedade, June 20, 2018, https://irisbh.com.br/wp-content/uploads/2018/06/GDPR-and-its-effects-on-the-brazilian-law.pdf.

[384] Greenleaf, "'Modernized' Data Protection Convention 108 and the GDPR," 2-3.

delisting of results should be local, national, or international, according to the fundamental rights in question in each individual case. This ran contrary to the spirit of "uniformization" promoted most recently by the GDPR.[385] Despite the fact that there is a difference between a preliminary ruling regarding a Directive and the likely outcome of a similar decision based on a Regulation, this case provides an insight into the CJEU's reasoning regarding this subject.

This decision does not give a global, extraterritorial reach to the right to be forgotten. In fact, the decision provides that national courts and authorities have the capacity to ponder fundamental rights in light of the Directive in question and apply it accordingly. Regarding this issue, the de-referencing of data subjects on the basis of the GDPR leaves less room for further interpretation, dissonance, and judicial autonomy.[386]

Of course, there remain various disagreements and concerns with regard to implementation proceedings, levels of protection rendered, the configuration of data authorities' structures when it comes to the GDPR, as well as the usually lengthy period of consolidation of these types of legislation in courts.[387] Nevertheless, in a way, one cannot help but be somewhat impressed by how both the GDPR and the newly consolidated Convention 108+ represent an advance in the attempts to counter Lawrence Lessig's 1997 assertion that "in cyberspace, the game is code" and that "Law is a side-show."[388]

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[385] "EU law does not currently require that the de-referencing granted concern all versions of the search engine in question, it also does not prohibit such a practice. Accordingly, a supervisory or judicial authority of a Member State remains competent to weigh up, in the light of national standards of protection of fundamental rights (see, to that effect, judgments of 26 February 2013, *Åkerberg Fransson*, C−617/10, EU:C:2013:105, paragraph 29, and of 26 February 2013, *Melloni*, C−399/11, EU:C:2013:107, paragraph 60), a data subject's right to privacy and the protection of personal data concerning him or her, on the one hand, and the right to freedom of information, on the other, and, after weighing those rights against each other, to order, where appropriate, the operator of that search engine to carry out a de-referencing concerning all versions of that search engine. In the light of all of the foregoing, the answer to the questions referred is that, on a proper construction of Article 12(b) and subparagraph (a) of the first paragraph of Article 14 of Directive 95/46 and Article 17(1) of Regulation 2016/679, where a search engine operator grants a request for de-referencing pursuant to those provisions, that operator is not required to carry out that de-referencing on all versions of its search engine, but on the versions of that search engine corresponding to all the Member States, using, where necessary, measures which, while meeting the legal requirements, effectively prevent or, at the very least, seriously discourage an internet user conducting a search from one of the Member States on the basis of a data subject's name from gaining access, via the list of results displayed following that search, to the links which are the subject of that request." Case C-507/17, Google Inc. v. Commission Nationale de L'informatique et des Libertés (CNIL), 2019 E.C.R.

[386] A right to be forgotten and its origins will be further discussed in the next section of this chapter.

[387] "Some EU governments are concerned not to let these regulatory challenges frighten business away, but are also increasingly experiencing the benefits of having privacy and data protection laws in the wake of repeated data collection scandals." Access Now, *Mapping Regulatory Proposals for Artificial Intelligence in Europe*, November 1, 2018, https://www.accessnow.org/cms/assets/uploads/2018/11/mapping_regulatory_proposals_for_AI_in_EU.pdf, 8.

[388] Lawrence Lessig, "The Constitution of Code: Limitations on Choice-Based Critiques of Cyberspace Regulation," *Commlaw Conspectus* 5, no. 2 (Summer 1997): 184, https://scholarship.law.edu/commlaw/vol5/iss2/5/.

Everything considered, does this mean that law can actually be code? According to Shoshana Zuboff, it can, but what really matters is what follows the enactment of such laws.

> The only possible answer is that everything will depend upon how European societies interpret the new regulatory regime in legislation and in the courts. It will not be the wording of the regulations but rather the popular movements on the ground that shape these interpretations. [. . .] Only time will tell if the GDPR will be a catalyst for a new phase of combat that wrangles and tames an illegitimate marketplace in behavioral futures, the data operations that feed it, and the instrumentarian society toward which they aim. In the absence of new synthetic declarations, we may be disappointed by the intransigence of the status quo. If the past is a prologue, then privacy, data protection, and antitrust laws will not be enough to interrupt surveillance capitalism.[389]

It remains to be seen whether or not regulations like the GDPR and Convention 108+ will have a significant impact on the future, but they certainly lay an essential foundation for what is to come. Although further research is needed to better explore the impending interpretations and judicial reviews of these concepts,[390] it is possible to currently outline some significant repercussions, especially with regard to Google's practices and business model.

5 The Right to Be Forgotten as a Setting Stone for Users' Rights

The benchmark case for the European Union's stance on ensuring Google respects its principles and the fundamental rights it guarantees is a case concerning the right to be forgotten, which stems from a 2014 decision of the Court of Justice of the European Union.[391] A decision was rendered by Spanish courts in a case between the Spanish Data Protection Agency and Google Spain, which then brought the case to the CJEU. In the Google Spain case, the European Court decided in favor of the possibility of data subjects having data

[389] Zuboff, *Age of Surveillance Capitalism*, 454-455.
[390] "This likely judicial reluctance to become involved in unravelling algorithmic systems is unfortunate because, at least in the public sector, a very valuable tool for transparency might be found in the institution of judicial review." Lilian Edwards and Michael Veale, "Enslaving the Algorithm: From a 'Right to an Explanation' to a 'Right to Better Decisions'?," *IEEE Security & Privacy* 16, no. 3 (May, 2018), https://doi.org/10.1109/MSP.2018.2701152.
[391] David Erdos, "Disclosure, Exposure and the 'Right to Be Forgotten' after *Google Spain*: Interrogating Google Search's Webmaster, End User and Lumen Notification Practices," *Computer Law & Security Review* 38 (September 2020), https://doi.org/10.1016/j.clsr.2020.105437.

regarding them erased from controllers' database "in particular where they appear to be inadequate, irrelevant or no longer relevant, or excessive in relation to those purposes and in the light of time that has elapsed."[392]

The ruling in the Google Spain case was based on an interpretation of Directive 95/46/EC, which failed to provide an extensive approach to the jurisdictional scope of data protection regulation.[393] Since the 1990s, the processing of data of European subjects, such as Mario Costeja, increasingly began to occur outside the territorial scope of European Union member states, even when it was to provide services specifically meant for EU data subjects. For instance, the website www.google.es, which is in Spanish, could be tailored to attend to the needs of a person living in Madrid when crafting its results page, even though all the data processing operations happen elsewhere, in the "cloud," or, more accurately, in data centers in California or other jurisdictions outside the European Union.

Thus, the Google Spain case sought to establish international private law theories based on the close connection test, by which it would be possible to apply European data protection laws.[394] Article 4 of Directive 95/46/EC provided a rule that considered the location of the equipment used by a controller for determining the applicability of relevant laws, which currently seems like an outdated provision in a globalized digital economy.[395] Not only did the decision regarding Google Spain claim the jurisdiction of European data protection rules over an extended territorial scope, but it also laid the foundations of a data protection jurisdiction trend that would follow, whose territorial scope was more in tune with

[392] "It follows from those requirements, laid down in Article 6(1)(c) to (e) of Directive 95/46, that even initially lawful processing of accurate data may, in the course of time, become incompatible with the directive where those data are no longer necessary in the light of the purposes for which they were collected or processed. That is so in particular where they appear to be inadequate, irrelevant or no longer relevant, or excessive in relation to those purposes and in the light of the time that has elapsed." Case C-131/12, Google Spain v. Gonzalez, 2014 E.C.R. §§ 93.

[393] Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995. For further analysis of the Court's decision, see: Marco Bassini, "Fundamental Rights and Private Enforcement in the Digital Age," *European Law Journal* 25, no. 2 (March 2019): 188-191, https://doi.org/10.1111/eulj.12310.

[394] See also: Dan Jerker B. Svantesson, *Solving the Internet Jurisdiction Puzzle* (Oxford: Oxford University Press, 2017), 62-63, https://doi.org/10.1093/oso/9780198795674.001.0001.

[395] "Each Member State shall apply the national provisions it adopts pursuant to this Directive to the processing of personal data where: (a) the processing is carried out in the context of the activities of an establishment of the controller on the territory of the Member State; when the same controller is established on the territory of several Member States, he must take the necessary measures to ensure that each of these establishments complies with the obligations laid down by the national law applicable; (b) the controller is not established on the Member State's territory, but in a place where its national law applies by virtue of international public law; (c) the controller is not established on Community territory and, for purposes of processing personal data makes use of equipment, automated or otherwise, situated on the territory of the said Member State, unless such equipment is used only for purposes of transit through the territory of the Community." Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995.

the current times when many non-European companies are offering their online services to European markets and cloud computing with globally distributed data center locations.[396]

In the Mario Costeja case, the Court of Justice reasoned that the role of search engines, although parallel to those of the original website indexed in the results page, aggravated fundamental rights' infringements.[397] Its view was that the efficient access to information the search engine provided, along with the broad scope with which it scoured the internet for information, exacerbated rights violations by making inadequate, irrelevant, no longer relevant or excessive information about the data subject readily available. Additionally, the European Court of Justice understood that search engines allow for greater dissemination of the information the data subject wishes to erase, which may have potential consequences to the extent of damages rendered by these fundamental rights violations.

The Court's decision also provides some sense of direction for further interpretation of similar cases.[398] It clearly states that websites which index results (search engines, for example) may be infringing individuals' fundamental rights when such an inclusion is contrary to their interests, regardless of the processor's economic interest or the general public's interest in this information.

> As the data subject may, in the light of his fundamental rights under Articles 7 and 8 of the Charter, request that the information in question no longer be made available to the general public on account of its inclusion in such a list of results, those rights override, as a rule, not only the economic interest of the operator of the search engine but also the interest of the general public in having access to that information upon a search relating to the data subject's name.[399]

This jurisprudential milestone paved the way for other decisions based on the European Union's Charter of Fundamental Rights, as well as a specific legal provision in the data protection regulation to come (Article 17 of the GDPR).[400] Although jurisprudence in

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[396] E.J. Kindt, "Why Research May No Longer Be the Same: About the Territorial Scope of the New Data Protection Regulation," *Computer Law & Security Review* 32, no. 5 (October 2016): 736, https://doi.org/10.1016/j.clsr.2016.07.007.

[397] Hiroshi Miyashita, "The 'Right to Be Forgotten' and Search Engine Liability," *Brussels Privacy Hub* 2, no. 8 (December 2016): 6, https://brusselsprivacyhub.eu/publications/wp28.html.

[398] See: Case C−40/17, Fashion ID GmbH & Co.KG v. Verbraucherzentrale NRW eV, CJEU 2019; C−136/17, GC and Others v. Commission nationale de l'informatique et des libertés (CNIL), CJEU 2019; C-345/17, Sergejs Buivids v. Datu valsts inspekcija, CJEU 2019; Case C−496/17, Deutsche Post AG v. Hauptzollamt Köln, CJEU 2019; C−507/17, Google LLC, successor in law to Google Inc. v. Commission nationale de l'informatique et des libertés (CNIL), CJEU 2019.

[399] Case C-131/12, Google Spain v. Gonzalez, 2014 E.C.R. § 99.

[400] Doneda, *Da privacidade à proteção de dados pessoais*, 43. See also: Selen Uncular, "The Right to Removal in the Time of Post-Google Spain: Myth or Reality under General Data Protection Regulation?" *International Review of Law, Computers & Technology* 33, no. 3 (2019): 309-329, https://www.tandfonline.com/doi/abs/10.1080/13600869.2018.1533752; George Grachis, "Global Data Protection and the Right to Be Forgotten," *CSO*, October 17, 2019, Opinion,

member states and the Court of Justice of the European Union had previously provided judicial precedents for this, a technical refinement of the right to erasure as a legal institute came to be through the right of a subject to withdraw consent for the processing of data about him or her, without which there is no legal ground for processing such data.[401]

Until then, Directive 95/46/EC had not explicitly encompassed the **right to be forgotten** under users' rights. This guarantee was first introduced in a piece of legislation within the European Union's legal context through article 17(1) of the GDPR under the term "right to erasure." The article states that "the data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay."[402] Therefore, will and consent (and the lack thereof) are at the core of this discussion regarding how a data subject can achieve informational self-determination, a future-oriented right not to be indexed, and thus, a right to be erased from a particular database.[403]

Of course, the GDPR imposes certain standards and conditionalities for when this right may be granted, such as when there is no more legal ground for processing data regarding a data subject and the data subject has withdrawn consent or when personal data has been unlawfully processed to begin with.[404] Article 17 also provides exemptions to the right to erasure, such as when processing of such data is required to exercise the rights to freedom of expression and access to information, for archiving for scientific purposes or historical research, and by matters of public interest. The intention appears to be to strike a balance between public information interests and individual privacy.[405]

Regardless of such exemptions and conditionalities, in a sense, the right to erasure as determined by the GDPR supports a jurisprudential path towards which some European courts and legislators had already been moving.[406] Even more important, it represents a critical search for symmetry in the relationship between users and internet platforms,

https://www.csoonline.com/article/3446446/global-data-protection-and-the-right-to-be-forgotten.html; Carsten M. Wulff, "The Right to Be Forgotten in Post-Google Spain Case Law: An Example of Legal Interpretivism in Action?" *Comparative Law Review* 26 (2020): 255-279, http://dx.doi.org/10.12775/CLR.2020.010.

[401] Uncular, "The Right to Removal," 309-329.

[402] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.

[403] Miyashita, "The 'Right to Be Forgotten'," 5. See also: Presthus and Sørum, "Consumer Perspectives on Information Privacy," 26-27; Giovanni Sartor, "The Right to Be Forgotten: Balancing Interests in the Flux of Time," *International Journal of Law and Information Technology* 24, no. 1 (Spring 2016): 72-98, https://academic.oup.com/ijlit/article-abstract/24/1/72/2357353.

[404] Joanna Connolly, "The Right to Erasure: Comparative Perspectives on an Emerging Privacy Right," *Alternative Law Journal* 46, no. 1 (March 2021): 58–63, https://doi.org/10.1177/1037969X20959839.

[405] Haya Yaish, "Forget Me, Forget Me Not: Elements of Erasure to Determine the Sufficiency of a GDPR Article 17 Request," *Case Western Reserve Journal of Law, Technology and the Internet* 10 (2019): [iv]-30, https://heinonline.org/HOL/P?h=hein.journals/caswestres10&i=103.

[406] Uncular, 318.

especially those with a broad reach, international accessibility, and a predominant market share, such as Google's search engine.[407]

In order to justify its search results and prevent external influences from interfering with the functionalities of its algorithm, a common defense Google has provided and still provides in many jurisdictions is that its search engine's results are the outcome of automated decisions which would be impossible to scale in terms of efficiency and speed if there were excessive human intervention in the process.[408] In turn, there is evidence of actual policy changes within technological companies in this regard.

> For global companies like Google, Facebook or Amazon, it is not an option to leave the European market. At the same time, it is an extraordinary burden to organize their business along two different sets of legal regulations. The inherent mobility of data necessitates de facto transnational regulation. For now, it is far more efficient to implement the rigid European regulations on a global scale, instead of trying to align digital markets with national borders.[409]

Similar to what has occurred with the right to be forgotten in Europe, particularly in Spain, it is not only possible but also necessary to comply with the regulations of national jurisdictions in which legislative or judicial bodies decide that certain content should not be indexed nor promoted. Such is the case with anti-Semitic websites, which are removed or demoted from Google's result page in countries like France and Germany, but not in the United States.[410] This demonstrates both Google's ability to act in accordance with local legal and cultural standards, even if not obliged by law, and also the resistance of the company to curate specific content to standardize its operations across all the jurisdiction in which the platform is used. Article 3(2) of the GDPR, regarding its territorial scope, asserts this reasoning.

> This Regulation applies to the processing of personal data of data subjects who are in the Union by a controller or processor not established in the Union, where the processing activities are related to: 1. the offering of goods or services, irrespective of whether a payment of the data subject is required, to such data subjects in the Union; or 2. the monitoring of their behaviour as far as their behaviour takes place within the Union.[411]

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[407] Uncular, "The Right to Removal," 321-322.
[408] Wulff, "The Right to be Forgotten," 270-271.
[409] Bendiek and Römer, "Externalizing Europe," 35.
[410] Siva Vaidhyanathan, *The Googlization of Everything (And Why We Should Worry)* (Los Angeles: University of California Press, 2011), 65.
[411] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.

Thus, the Google Spain decision is not only significant in terms of the right to be forgotten. Rather, it is a decision that also asserts data protection rights as another means to reclaim jurisdiction in the digital age.[412] Search engine liability, despite how it is constructed legally and jurisprudentially, is a matter that presents a challenge to a central characteristic of the globalized internet: internet applications aim to be global, but their local implementation still has to comply with legal, cultural, and societal standards, which are far from universal. According to Hiroshi Miyashita, "legal uncertainty and inconsistency concerning search engine liability result in the varied attitudes on the right to be forgotten."[413] The European Union has made a particular effort to standardize fundamental rights within the union, such as the right to privacy and subsequent data processing rights through regulation. However, many global platforms, such as Google's search engine, are still imbued with legal American values, economic priorities, and long-lasting commercial practices.

This is one reason why the right to be forgotten was and still is a challenge to the business model of Google and other major internet applications: different legal regimes and traditions will demand different practices, according to their priorities. Unlike in the United States, where the tradition of free speech acts as a broad basis for intermediaries to claim immunity from liability, the latest jurisprudential and legislative accomplishments of the European Union are pointing towards more responsibilities for data controllers, even if they are only indexing other websites' original publications, as search engines do. Furthermore, this decision and its subsequent legislative repercussions have influenced other jurisdictions outside of the European Union, such as Brazil.[414]

Within the context of the European Union, other cases brought by the CJEU have referenced the Google Spain decision and built jurisprudence upon it. For example, Case C-507/17 has established a direct link between the interpretations of a right to erasure under Directive 95/46 and Regulation 2016/679.

> It follows from Article 4(1)(a) of Directive 95/46 and Article 3(1) of Regulation 2016/679 that both that directive and that regulation permit data subjects to assert their right to de-referencing against a search engine operator who has one or more

[412] See also: Guido Noto La Diega, "Data as Digital Assets. The Case of Targeted Advertising," in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 476, https://doi.org/10.1007/978-3-662-57646-5; Svantesson, *Solving the Internet Jurisdiction Puzzle*, 174-175.
[413] Miyashita, "The 'Right to Be Forgotten'," 13.
[414] Simone de Assis et al., "Herança da Informação digital e direito ao esquecimento em redes sociais on-line: Uma revisão sistemática de literatura," *Em Questão* 26, no. 1 (Janeiro/Abril, 2020): 351-377, https://seer.ufrgs.br/EmQuestao/article/view/86980/53754.

> establishments in the territory of the Union in the context of activities involving the processing of personal data concerning those data subjects, regardless of whether that processing takes place in the Union or not.[415]

In Google LLC vs. Commission nationale de l'informatique et des libertés (CNIL) in particular, although such a link was recognized, the decision determined that dereferencing decisions in member states do not automatically grant the dereferencing of data subjects of a search engine on all of its (worldwide) versions.[416]

Yet more cases in the CJEU have expanded on the interpretations given by Google Spain, considering the special balance data controllers such as Google need to find when deciding on dereferencing requests.[417] This balance is between protecting the fundamental rights of the individual with regard to data protection and privacy and exceptions to them due to the right to process data (for example, information publicized by the data subject, or where processing is necessary for the purposes of carrying out the obligations and specific rights of the controller). Data controllers and data protection authorities ought to ponder such conflicting rights in order to assess specific cases in question better.

Moreover, the right to erasure strikes a delicate balance between access to information and freedom of expression, making Google Search's indexation of results a central tool for guaranteeing both these rights in today's digital realm. This corroborates the idea of a search engine, particularly Google's search engine, being a nodal point online that not only allows connection to knowledge and content but also provides worldwide access to potentially damaging and disparaging content.

Finally, this case has been particularly important for asserting users' rights in the European Union context because it set the ground for subsequent decisions (and legislation) that have rejected the idea that Google's search results are inherently a technical matter and impervious to change. Instead, they characterize the platform as not only susceptible to legislative regulation, but also subject to other ways of scrutinizing its algorithm, such as fair competition regulation and inquiry regarding trade secrets.

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[415] Case C-507/17, Google LLC, successor in law to Google Inc. v. Commission nationale de l'informatique et des libertés (CNIL), CJEU 2019 § 48.

[416] "[W]here a search engine operator grants a request for de-referencing pursuant to those provisions, that operator is not required to carry out that de-referencing on all versions of its search engine, but on the versions of that search engine corresponding to all the Member States." Case C-507/17, Google LLC, successor in law to Google Inc. v. Commission nationale de l'informatique et des libertés (CNIL), CJEU 2019 §§ 64, 65, 73.

[417] Case C-136/17, GC and Others v. Commission nationale de l'informatique et des libertés (CNIL), CJEU 2019 § 69.

6 Regulation Theory and the Case for Governing Google's Algorithmic Automated Decision Processes: Towards a Right to Explanation

Google's unprecedented business model not only set a standard for other tech firms with regard to surveillance capitalism practices, Facebook being the most notorious of them, it also brought about the need for new regulations. Broadly speaking, these regulatory initiatives took shape in several different forms: standard public regulation through legislation, the creation of new regulatory authorities, judicial and administrative empowerment of individual users and civil society representatives, and even the regulation of the technical infrastructure that supports the internet, among others.[418] For the purposes of this thesis, it is necessary to highlight some initiatives that have had a concrete effect on users' lives, as well as look at other regulatory options still available.

In 1997, Lawrence Lessig stated that "we are entering a time when direct regulation by government will be one of the least important modes of regulation; when the most important regulations will be regulations that are less direct."[419] It is easy to criticize the author in hindsight, especially considering that he was mostly referring to the subject of intellectual property rights, in particular copyrights, and its growing limitations on protection in an increasingly technological environment.

Nonetheless, the State, its territorial reach, and its monopoly on power over internet users, businesses, and infrastructures are still some of the primary sources of regulation available. While it is becoming increasingly globalized and subject to international cooperation and compatibility mechanisms, the internet still does not exist solely "in the cloud." Most of its infrastructure is composed of cables managed by companies with territorialized assets and liabilities. This infrastructure is subject to the power of States to

[418] "Whether the existing hybrid constellation regulating the technical infrastructure will endure for the next decade is an open question, given the rapid changes and the increasing commercial importance of the Internet. The regulatory arrangement that has emerged is criticized from two opposite camps. On one side are those who argue that there is too much regulation and propose that functions such as domain name management could be left completely to the market. Network neutrality rules are declared absolutely unnecessary and dispensable. On the other side are those who call for more regulation, particularly for more political leverage for all interested or affected states on all relevant aspects of the technical infrastructure. Intergovernmental organizations or forums might have the legitimacy and the sanctioning power to implement regulations including the new Internet protocol stack (IPv6) which still struggles for acceptance." Jügen Feick and Raymund Werle, "Regulation of Cyberspace," in *The Oxford Handbook of Regulation*, ed. Robert Baldwin, Martin Cave, and Martin Lodge (New York: Oxford University Press, 2010), 533.

[419] Lessig, "Constitution of Code," 191.

supervise and determine its proper ways of functioning. This fact is most evident in the example of the Great Firewall of China.[420]

> Why do theories of globalization and Internet scholarship so misunderstand and so underestimate the importance of territorial government? While the question is complex, this book has suggested a simple answer. What we have seen, time and time again, is that physical coercion by government—the hallmark of a traditional legal system—remains far more important than anyone expected. This may sound crude and ugly and even depressing. Yet at a fundamental level, it's the most important thing missing from most predictions of where globalization will lead, and the most significant gap in predictions about the future shape of the Internet.[421]

Additionally, one needs to recognize the practical effects that antitrust regulation has had on Google in the European Union over the last several years. Since the European Commission first started investigating Google's practices in 2010, within the scope of the European search engine market, the company has been fined €2.42 billion (2017), €4.34 billion (2018), and €1.49 billion (2019), for its business practices in three separate areas.[422] Google has appealed the decisions resulting from investigations into its practices but has also complied in part in order to avoid further modifications to its terms of conduct.[423]

The changes Google has had to make with regard to the practices that have prompted investigation include the elimination of exclusivity clauses from contracts with third parties for the provision of search engine tools on their websites, equal treatment of rival comparison shopping services and its own service on the search results page, no longer tying Google's search and browser apps to Android mobile devices, ending the practice of paying mobile hardware suppliers to exclusively pre-install Google Search on their devices, and refraining from obstructing the development and distribution of competing Android operating systems.

Regardless of the European Commission's offensive against Google's practices, companies like Facebook are seeking ways to avoid full compliance with the GDPR by changing their terms of service on the eve of the regulation coming into force. LinkedIn is following suit.[424] Though the processing of the personal data of European citizens will still be

[420] Chong Zhang, "Who Bypasses the Great Firewall in China?" *First Monday* 25, no. 4 (April 2020), https://doi.org/10.5210/fm.v25i4.10256.
[421] Jack Goldsmith and Tim Wu, *Who Controls the Internet? Illusions of a Borderless World* (Oxford: Oxford University Press, 2006), 180.
[422] European Commission "Antitrust: Commission Fines Google €1.49 Billion."
[423] This case will be discussed in detail in chapter 3.
[424] "The world's largest online social network is keen to reduce its exposure to GDPR, which allows European regulators to fine companies for collecting or using personal data without users' consent. That removes a huge potential liability for Facebook, as the new EU law allows for fines of up to 4 percent of global annual revenue

subject to the GDPR,[425] the new wording of Facebook's terms of services may place most of its international users under the jurisdiction of softer privacy regulations, those of the United States.

> Surveillance capitalism's economic imperatives were already on the move in late April 2018, in anticipation of the GDPR taking effect that May. Earlier in April, Facebook's CEO had announced that the corporation would apply the GDPR "in spirit" across the globe. In practice, however, the company was making changes to ensure that the GDPR would not circumscribe the majority of its operations. Until then, 1.5 billion of its users, including those in Africa, Asia, Australia, and Latin America, were governed by terms of service issued by the company's international headquarters in Ireland, meaning that these terms fell under the EU framework. It was in late April that Facebook quietly issued new terms of service, placing those 1.5 billion users under US privacy laws and thus eliminating their ability to file claims in Irish courts.[426]

Regarding the implementation of the GDPR and the possible repercussions of non-compliance by application providers such as Google, it remains to be seen how courts will interpret and enforce the provisions of Article 22 and Recital 71 of the regulation. The wording of these provisions may prove to be insufficient or too weak to adequately guarantee a right to explanation. It leaves too much room for interpretation of what constitutes the legitimate interests of data controllers under national laws, including laws concerning the protection of trade secrets.[427]

Also, it is worth mentioning that intellectual property rights and the property of intangible assets such as trade secrets are not absolute and can hinder the legitimate work of

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for infractions, which in Facebook's case could mean billions of dollars. Other multinational companies are also planning changes. LinkedIn, a unit of Microsoft Corp, tells users in its existing terms of service that if they are outside the United States, they have a contract with LinkedIn Ireland. New terms that take effect May 8 move non-Europeans to contracts with U.S.-based LinkedIn Corp." David Ingram, "Exclusive: Facebook to Put 1.5 Billion Users out of Reach of New EU Privacy Law," Reuters, April 19, 2018, https://www.reuters.com/article/us-facebook-privacy-eu-exclusive-idUSKBN1HQ00P. See also: Cedric Ryngaert and Mistale Taylor, "The GDPR as Global Data Protection Regulation?" *AJIL Unbound* 114 (2020): 5-9, https://www.cambridge.org/core/services/aop-cambridge-core/content/view/CB416FF11457C21B02C0D1DA7BE8E688/S2398772319000801a.pdf/gdpr_as_global_data_protection_regulation.pdf; Coral Ingley and Philippa Wells, "GDPR: Governance Implications for Regimes Outside the EU," *Journal of Leadership, Accountability and Ethics* 16, no. 1 (2019): 27-39, https://articlegateway.com/index.php/JLAE/article/view/1361.

[425] Article 3(2): "This Regulation applies to the processing of personal data of data subjects who are in the Union by a controller or processor not established in the Union, where the processing activities are related to: the offering of goods or services, irrespective of whether a payment of the data subject is required, to such data subjects in the Union; or the monitoring of their behaviour as far as their behaviour takes place within the Union." Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.

[426] Zuboff, *Age of Surveillance Capitalism*, 456.

[427] So far, approaches to implementing safeguards in automated decision-making under the GDPR have been varied across European Union member countries. Regarding the mapping of such approaches, see: Malgieri, "Automated Decision-Making," 24.

academics, jurists, and policymakers alike if viewed according to a simplistic binary logic of full/complete protection vs. no protection at all. Several categories of intellectual intangible rights, such as patents and copyrights, are subject to **limitations and exceptions**, such as compulsory licensing, the Bolar exemption, and scientific research.

Moreover, according to EU law, when needed, it is possible to preserve the confidentiality of trade secrets revealed in the course of some legal proceedings by: restricting access to documents containing trade secrets or alleged trade secrets revealed by the parties or third parties; restricting access to hearings and the corresponding records or transcripts of those hearings to a limited number of persons when trade secrets or alleged trade secrets may have been disclosed; making available to interested third parties a non-confidential version of any judicial decision, in which the passages containing trade secrets have been removed or redacted.[428] These approaches have yet to be uniformized across all legal proceedings but indicate possible pathways to the future.

Furthermore, one of the purposes of protecting traditional categories of intellectual property is to allow for the possibility of innovations and inventions to eventually become available on a larger scale to society once their progenitors have made enough profits over a determined period of time. This is the case with patents when they expire and copyrights when they ultimately fall into the public domain. If society places excessive emphasis on the protection of intellectual assets in the way that digital information companies seem to be pushing for when it comes to safeguarding their algorithms, this will undermine the eventual transfer of innovation from private actors to the broader public (including competitors) that is guaranteed for intellectual property. It may seem a tautology to emphasize this perspective. However, in the case of trade secrets, they will be protected as long as they are kept confidential, meaning that their conceptual nature as a category of intangible assets of a competitor reinforces their perpetual competitive advantage in a market, without an eventual availability to the rest of society.

As a competition strategy, it makes sense for companies to ensure the confidentiality of secrets that provide advantages to their business. However, if we broaden the scope of

[428] Article 9(2). Directive (EU) 2016/943, of the European Parliament and of the Council of 8 June 2016. Regarding governmental transparency and informational disclosure, Bloch-Wehba also asserts that: "New challenges to transparency and accountability also resonate within the broader framework of the law of access to government proceedings and records, which is preoccupied with opening government decision-making to public view." Bloch-Wehba, "Access to Algorithms," 1295. See also: Brkan and Bonnet, "Legal and Technical Feasibility," 41; Perel and Elkin-Koren, "Black Box Tinkering," 197.

analysis towards an overall view of what innovation and technological advancements should offer society, we can see that the growing dominance of trade secret protections as the primary means of protecting such a substantial market certainly poses a risk to competition, the sharing of technology, and incentives to innovate.

The need for an equitable balance between the actors involved in Google's search engine business has to take into account various considerations: privacy, freedom of expression, access to information, freedom to conduct business, and competition, among others.[429] Some of the regulatory measures in place already account for these considerations, even though they may not seem as effective as they ought to be. This may be due in part to the fact that there are multiple stakeholders in the practice of internet governance.[430] Decentralized infrastructures, national conceptions of business models, and global reach all add up to internet governance being a very sensitive and delicate subject to tackle from a policymaking, administrative, and market perspective, and it is frequently subjected to all sorts of lobbying and procedural pressures.

A right to explanation is just one piece of the puzzle, since, rather than the source code itself, the functioning parameters of algorithms and the data sets used as input may be even more relevant to explaining the outcomes of automated decisions.[431] Nonetheless, a right to explanation is an important starting point for a long journey toward effective accountability when it comes to the use of algorithms to provide services that rely on automated decision processes, such as that of search engines. Institutionalizing a right to explanation may enable all parties involved to understand system functionality,

> ie the logic, significance, envisaged consequences, and general functionality of an automated decision-making system, eg the system's requirements specification, decision trees, pre-defined models, criteria, and classification structures; or to *specific decisions*, ie the rationale, reasons, and individual circumstances of a specific automated decision, eg the weighting of features, machine-defined case-specific decision rules, information about reference or profile groups.[432]

[429] Wachter and Mittelstadt, "Right to Reasonable Inferences," 11-12.
[430] The stakeholders in internet governance usually include: delegates from the government, members of the private sector, the tech and scientific communities, and representatives of civil society. Jovan Kurbalija, *Uma introdução à governança da internet* (São Paulo: Comitê Gestor da Internet no Brasil, 2016).
[431] Wachter and Mittelstadt, "Right to Reasonable Inferences," 514.
[432] Wachter, Mittelstadt, and Floridi, "Why a Right to Explanation," 78.

Providing users with "suitable safeguards, which should include specific information to the data subject and the right to obtain human intervention, to express his or her point of view, to obtain an explanation of the decision reached after such assessment and to challenge the decision," is a means of implementing the GDPR's practical regulatory approach.[433] Data controllers can be scrutinized by data protection authorities, reprimanded, and sought for damages in courts, in addition to being subject to the scrutiny of public opinion, if its standards of data processing are not in accordance with the law.[434]

One last point to be made is that ensuring that internet services companies adhere to transparency standards with regard to their use of algorithms by providing an explanation of the reasoning employed by automated decision making processes may simply not be enough to protect users' rights. To whom are service providers transparent? When it comes to an effective right to explanation, there still remain serious concerns regarding how final users, whether they be individuals or businesses, will understand and make sense of a clarification regarding which parameters and personal data were used to inform a search engine's ranking of results.[435] Will all users be familiar with and understand the concept of customized content? Will they comprehend the role of geolocalization in tailoring ads? Will they make use of anti-tracking applications if seeking more "neutral" searches online?

[433] Recital 71 - Profiling. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016. See also: Janssen, "An Approach for a Fundamental Rights Impact Assessment," 106; Büchi et al., "Chilling Effects of Algorithmic Profiling," 2.

[434] Ever since the Cambridge Analytica scandal broke, Facebook has been facing serious trust issues, both among its users and regulators worldwide. Due to the misuse of personal data by a seemingly harmless "personality quiz app," "[p]oliticians in the United States and Britain have called for Mr. Zuckerberg to explain how his company handles user data, and state attorneys general in Massachusetts and New York have begun investigating Cambridge Analytica and Facebook. A #DeleteFacebook movement calling on people to close their accounts has also gathered steam." Sheera Frenkel and Kevin Roose, "Zuckerberg, Facing Facebook's Worst Crisis Yet, Pledges Better Privacy," *The New York Times*, March 21, 2018, Technology, https://www.nytimes.com/2018/03/21/technology/facebook-zuckerberg-data-privacy.html. See also: Allison J. Brown, "'Should I Stay or Should I Leave?': Exploring (Dis)Continued Facebook Use after the Cambridge Analytica Scandal," *Social Media + Society* (January-March 2020): 1-8, https://doi.org/10.1177/2056305120913884; Hagar Afriat et al., "'This Is Capitalism. It Is Not Illegal': Users' Attitudes toward Institutional Privacy Following the Cambridge Analytica Scandal," *The Information Society* 37, no. 2 (2020): 115-127, https://www.tandfonline.com/doi/full/10.1080/01972243.2020.1870596; Margaret Hu, "Cambridge Analytica's Black Box," *Big Data & Society* (July-December 2020): 1-6, https://doi.org/10.1177/2053951720938091.

[435] Edwards and Veale, "Enslaving the Algorithm," 13.

7 Intermediary Conclusions

As transparency is a relational concept that addresses a rapport between two different parties, if a search engine is characterized by a lack of transparency, this has the potential to make it untrustworthy and lead it to present biased results. This notion regarding transparency (or the lack thereof) has been at the heart of the European Commission's competition regulation enforcement against Google in three different cases so far. These cases emphasize a link between the company's opaqueness and its harms to competition, which have given rise to abuse of its dominant position.

For better transparency standards, some researchers advocate a relational and qualified approach, through minimum disclosure practices, third-party audits, an expansion of competition authorities' role in regulating algorithms, and further legal development of the right to explanation through legislation. These proposals consider the concept of transparency through three different lenses: consumers, business users, and regulators.

With regard to the concept of accountability, it encompasses the responsibilities involved in data processing. In practice, it imposes obligations for data controllers to report operational procedures, management documents, and decision-making processes in order to assign certain responsibilities to the parties involved in data processing. These demonstrations of compliance to the law are part of the increased transparency standards set out by the GDPR.

The liability procedures listed above depend on the context of the algorithmic systems and the level of risk involved. Google's trade secret has contributed to a lack of accountability and transparency over the last twenty years.

Google transitioned from gateway to gatekeeper of information online through its content selection and favoritism toward its own services beyond Google Search. Its results are widely perceived as neutral and natural responses to queries; however, the incentives for advertisers to appear on the first page of results drive the company's main source of revenue. Furthermore, Google Search's algorithmic decisions have a direct impact on consumer choice and the flow of online traffic, which further increases its market power.

Several initiatives that were devised specifically to deal with data protection can be applied in this context. Convention 108, Directive 95/46, and the GDPR, for instance, all

concern personal data processing and tend to globalize safeguard parameters. They all have had universalizing repercussions for data protection, though through different tools. Convention 108 can be signed by countries outside the Council of Europe, whereas the GDPR seeks adequacy standards for maintaining international transfers of data.

Specifically concerning Recital 71, which proposes a right to explanation within the European Union, its operative nature is still fragile due to the fact that it does embody the current regulations of the GDPR.

One of the most significant examples of a legal decision against Google in the European Union is the decision rendered by Spain in a case between the Spanish Data Protection Agency and Google Spain, which then brought the matter to the CJEU. The Google Spain case asserted a right to be forgotten in order to safeguard users' fundamental rights. The European Court of Justice recognized the potential damages of Google's search engine, providing some preference to individuals' rights over the ability of websites to index online information when inclusion of certain data is contrary to users' interests, regardless of the processor's economic interest or the general public's interest in this information. Thus, Google's search engine, being a nodal point in today's internet, one that allows connection to knowledge and content, is also recognized as a platform that provides worldwide access to potentially damaging and disparaging content.

The Google Spain decision paved the way for a right to erasure as determined by Article 17 of the GDPR and represents a critical search for symmetry in the relationship between users and internet platforms, confirming data protection rights as another means to reclaim jurisdiction in the digital age. Thus, data protection is an increasingly important asset for regulators.

Beyond antitrust regulation, which has managed to make Google change its practices to some degree and will be analyzed in detail in the next chapter, it remains to be seen how courts will interpret and enforce the provisions of Article 22 and Recital 71 of the GDPR systematically. My contention is that there is still much room for interpretation of what constitutes the legitimate interests of data controllers according to national laws, including laws concerning the protection of trade secrets. Consequently, in order to advance jurisprudence in the matter, data controllers ought to be scrutinized by data protection authorities and reprimanded and sought for damages in courts if their standards of data processing are not in accordance with the law.

In closing, the matter of preserving the confidentiality of trade secrets in the course of some legal proceedings, a common concern raised by critics of a right to explanation, can also be addressed by restricting access to procedural documents, hearings, and the corresponding records or transcripts, and by making available to interested third parties a non-confidential and redacted version of judicial decisions regarding trade secrets.

Chapter 3

Trade Secrets in an Algorithmic World: Competition and Innovation

1 Introduction

This chapter focuses on the economic aspects of trade secrets being a crucial tool for Google's search engine, with a special emphasis on the repercussions for competition and innovation. By first recognizing a substantive overlap between competition and data protection, I will characterize Google Search as a marketplace rather than a content provider. Because the company also offers products and services through its secondary applications and vertical search, analyzing how Google's dominant position in the search market facilitates access to these other markets is essential to better understanding the issues with which this work is concerned.

By reaching impressive market domination in several jurisdictions, Google Search comes close to being considered a common utility or an essential facility according to new trends in antitrust law both in the United States and in Europe. Google Search will be characterized as a two-sided platform that intermediates the relations between individual users and business owners seeking to appear on its results page. This puts it in a very asymmetrical and powerful position from an economic standpoint. The theoretical routes to classifying it as a common utility or essential facility will be investigated alongside the potential for Google to engage in anti-competitive behavior in this context.

Next, the fact that Google's trade secret allows the company to access a vast array of personal data and profile its users is juxtaposed with its shift towards personalization and engagement. This scenario affects competition because automated decisions are driven by the set of data available and the company's algorithm.

The more access a search engine has to users' patterns online, preferences, geolocation, and networks, the more customized its results page can be. Businesses that wish

to appear on Google Search's results page, an important driver of online traffic towards their website, then use search engine optimization techniques (SEOs) with the aim of improving their order in the ranking of results, a form of hacking the tool's parameters.

I will then discuss the excessive focus on trade secret protection by tech companies, legislation, and public discourse, which treats any limitations and minimum parameters of transparency as detrimental to algorithmic models. Arguably, some parameters of transparency for automated decision-making can actually both foster competition and promote innovation;[436] therefore, this unbalanced emphasis placed on the protection of algorithms can have negative outcomes for markets.

Finally, I will analyze the main cases involving Google's anti-competitive practices in the European Union, for which the company has been brought to court by the European Commission. These cases currently are pending final decisions in the Court of Justice of the European Union and entail incidents of Google abusing its dominant position in several markets, including by means of its applications, which disproportionately have favored its own search engine, its contracts with third parties, and its operating systems for mobile phones.

Overall, Google's anti-competitive practices have led in a significant way to the conception of a set of legislative efforts in the Union that attempt to regulate issues in the digital realm better. The 2015 Digital Single Market Strategy comprises regulations, directives, amendments, strategies, and other instruments with a view to governing digital marketing, e-commerce, and telecommunications in the European Union in a way that promotes fairness and transparency for business users of online intermediation services. Regulation 2019/1150, a consequence of the Digital Single Market Strategy, will be analyzed as a significant answer to some of the problems raised throughout this thesis, as it aims to strike a balance between the interests of business users of online search engines and the innovative proprietary nature of their ranking algorithms by raising transparency standards while preserving trade secrets and applying minimum disclosure requirements.

[436] Rory Van Loo, "Digital Market Perfection," *Michigan Law Review* 117, no. 5 (March 2019): 871, http://michiganlawreview.org/wp-content/uploads/2019/04/117MichLRev815_VanLoo.pdf.

2 Google as a Marketplace: The Current Legal Standard of Google's Search Engine

Throughout the years, Google Search has developed and expanded its services in different ways. First and foremost, as explained in this thesis, the idea behind Search would be similar to an indexation of the web, that is, a universal search service through which Google would provide useful links to other websites as results to a particular query of keywords. Notwithstanding its initial purpose, as Google grew, expanded, and specialized in personalization, it also transitioned its business model to a combined one in which its search engine not only provided useful links to third-party websites as results, but the answer to the query itself as well, also known as a **vertical search result**.[437] This is undoubtedly an advancement of the search engine business that has contributed to consumer welfare in some respects by minimizing the steps users have to make while performing their queries.[438]

The disintermediation fostered by the internet appears to be democratizing the media, but this is actually a misconception. Although there is certainly a democratic element to access to information and content production on the internet, it is possible to identify an inconspicuous middleman in supposedly disintermediated digital relations nowadays: the algorithm.[439] Intermediaries have changed from editors and publishers to the automated algorithms of curation and digital platforms, respectively.

This phenomenon emphasizes and enables greater personalization as a strategy to maintain users' engagement online, a matter of data-driven competition.[440] Unlike the previous scenario of intermediation by editors and publishers, who decided what was newsworthy and relevant, this task is now delegated to personalization tools, which utilize a myriad of personal data provided by users themselves (consciously or not): their website clicks, their social network likes, browsing history, geolocalization of devices, among

[437] Ioannis Kokkoris, "The Google Case in the EU: Is There a Case?" *The Antitrust Bulletin* 62, nº. 2 (June 2017): 315, https://doi.org/10.1177/0003603X17708362.
[438] Kokkoris, 322.
[439] Eli Pariser, *The Filter Bubble: What the Internet Is Hiding from You* (London: Penguin Books, 2011), 60.
[440] José Tomás Llanos, "A Close Look on Privacy Protection as a Non-Price Parameter of Competition," *European Competition Journal* 15, no 2–3 (July 16, 2019): 227-228, https://doi.org/10.1080/17441056.2019.1644577. See also: Lina M. Khan, "Amazon's Antitrust Paradox," *The Yale Law Journal* 126, no. 3 (January 2017): 780, https://www.jstor.org/stable/44863332.

others.[441] Thus, broadly speaking, intermediation is still present, but in new, not easily seen ways.[442]

One example of how intermediation continues would be the fact that when a user makes a query for "art nouveau museums in Brussels," Google now provides the addresses, opening hours, users' ratings, and a map with the location of "Horta Museum," "Cauchie House," and "Musée Fin-de-Siècle," rather than just listing links to the official websites of the places like it originally did (see picture below). This may seem like a subtle change, but it can also be a very useful one in that it reduces the number of steps a person interested in visiting these places has to take in order to find detailed information about "art nouveau museums in Brussels." Instead of just providing the links to their official websites, a scenario in which the user might have had to spend some time to discover each museum's address and a detailed schedule of opening hours, Google now also systematically lists the vital information of a particular place.

[441] Lisa Mays, "The Consequences of Search Bias: How Application of the Essential Facilities Doctrine Remedies Google's Unrestricted Monopoly on Search in the United States and Europe," *George Washington Law Review* 83, no. 2 (February 2015): 732, https://www.gwlr.org/wp-content/uploads/2015/05/83-Geo-Wash-L-Rev-721.pdf.

[442] According to Pariser: "Most people who are renting and leasing apartments don't 'go direct'—they use the intermediary of craigslist. Readers use Amazon.com. Searchers use Google. Friends use Facebook. And these platforms hold an immense amount of power—as much, in many ways, as the newspaper editors and record labels and other intermediaries that preceded them." Pariser, *Filter Bubble*, 61.

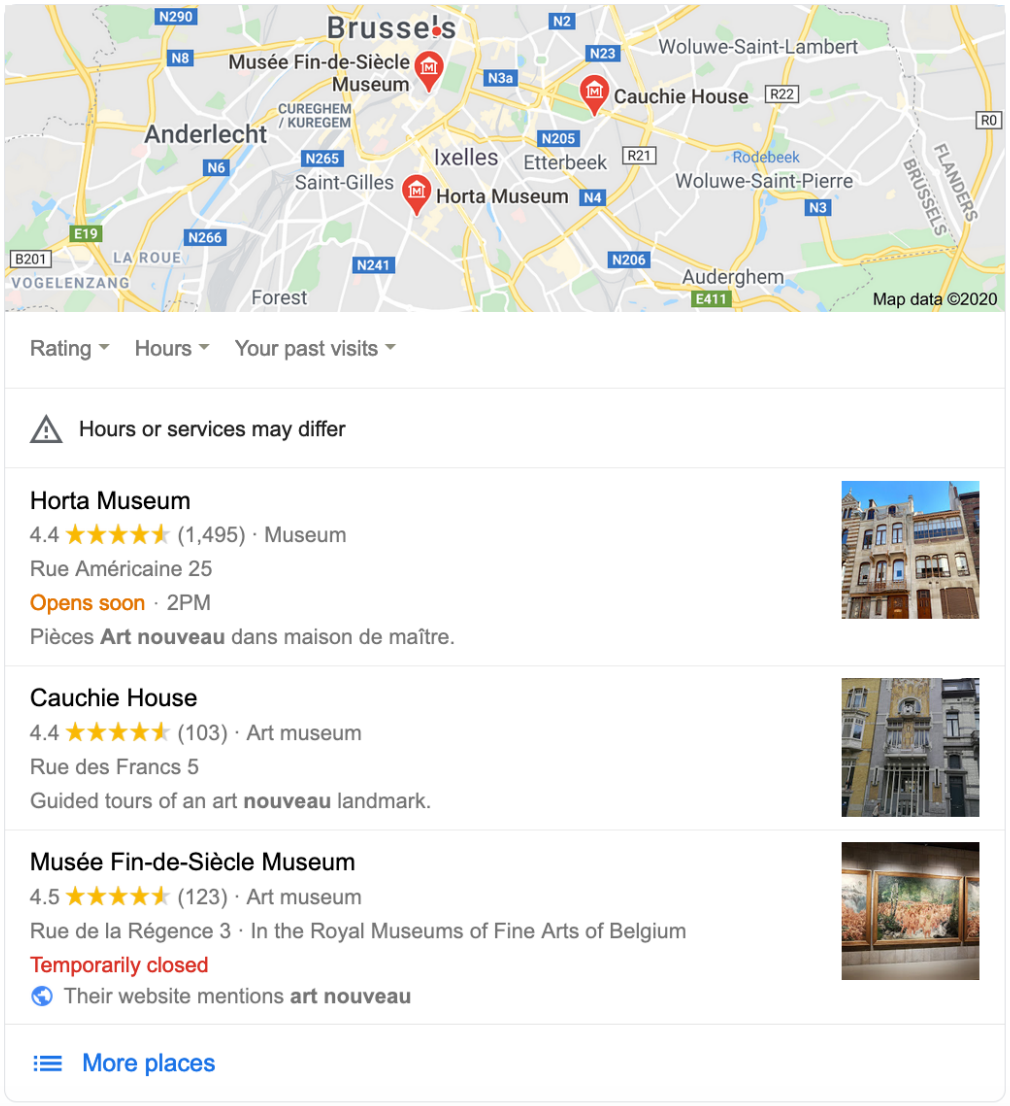

Figure 4. Partial result of a Google query for "art nouveau museum in Brussels"

It is definitely an advance that has added efficiency to their business model, and any Google Search user will attest to this. However, it is precisely because of this transformation of the results page that Google gradually and steadily has become a more influential intermediary between a search query and the final information a user presumably wants. Not only does this strategy divert internet traffic to Google's own applications and vertical search engine tools (in this case, Google Maps), but it also maintains control over and provides privileged access to information and content online. Google search thus has repositioned itself as a fundamental **gatekeeper of access to information online**, in addition to being a much broader tool, one that provides both horizontal and vertical search results: links to

useful websites that might contain the answer to users' queries (horizontal search); and images, flights, maps, videos, addresses, and phone numbers, etc. (vertical search).[443]

> In a circular manner, Google uses its monopoly power to ensure that it will maintain a monopoly. Google's behavior is controversial because it has the most widely used horizontal search engine in the world, but its vertical search engines lag far behind. Therefore, when Google uses its horizontal search dominance to preference to its own vertical search engines over all others in its results, it harms both competition, and consumers, by preventing them from seeing the most relevant results in the correct order. This abuse of monopoly power ensures that Google's competitors cannot meaningfully compete, violating the main goal of competition law—to protect competition, not competitors. The abuse consequently allows Google to improperly maintain its market share.[444]

For another example, if a user types "flights from Brazil to Belgium" into Google's search engine, the horizontal search results would be links to companies that sell flight tickets, some of them the actual air carriers, while others may be to travel agencies, etc. Under the upgraded and most current version of Google Search, a prominent result you may see is actually a preview of Google Flights (vertical search), an application from Google that ranks best flights, compares prices, suggests alternatives routes, etc., then a second section, composed of links to other sites, agencies, companies, etc. (horizontal search). It would not be an exaggeration to assume that Google is likely to eventually monetize these transactions when it directs its users to ticket vendors through its Google Flights or Google Maps applications, perhaps through a commission per click, for example.[445]

A similar situation occurs with videos and vertical search. Users often look for a specific video but do not immediately search for it on YouTube or other video platforms, like Vimeo. They often use Google Search or Google Chrome's search tool (because they tend to be the default applications of several devices), and Google will most likely recommend and steer users to YouTube, which is also owned by Google's parent company Alphabet Inc.[446] In

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[443] "General search and vertical search are two distinct products. On the searchers' side, specialized searchers in fact may not begin with a general search at all, but rather may go straight to specialized search engines. That there are independent providers of specialized search supports the conclusion that it is a distinct product from general search." Edward Iacobucci and Francesco Ducci, "The Google Search Case in Europe: Tying and the Single Monopoly Profit Theorem in Two-Sided Markets," *European Journal of Law and Economics* 47, no 1 (February 2019): 27, https://doi.org/10.1007/s10657-018-9602-y.

[444] Mays, "Consequences of Search Bias," 750.

[445] In fact, ads on Google Maps in the form of preferential listings of (physical) sites and colored pins (purple and green) for certain locations are already in the process of being incorporated into the platform to allow for direct monetization. "How Google Is Looking to Monetize Maps," *Bloomberg Technology*, April 10, 2019, video, https://www.bloomberg.com/news/videos/2019-04-10/how-google-is-looking-to-monetize-maps-video.

[446] This assumption could be tested with the help of computer science engineers in controlled environments to limit the impact of previous searches and other personal data on the same computer. However, the purpose of the present work, as explained in the methodology section, is not to perform an empirical analysis, as that would diverge from its initially established legal focus.

this particular example, other video platforms, such as Vimeo, might be offering competitive services in terms of quality, relevance, and efficiency but are probably not receiving as many users due to Google's gatekeeping of its primary market, search.

According to Professor Siva Vaidhyanathan, this capacity for gatekeeping provides Google with an enormous amount of power over the markets in which it is inserted, which, overall, represents a predominant portion of the internet nowadays.[447]

The main conclusion to be drawn from these circumstances is that there are several interests at play on the same platform, the Google Search search engine, which is predominantly the starting point of users' access to other (secondary) applications online. According to the European Commission, "A merchant platform (or online marketplace) is an online platform which allows users to buy online items from different sellers without leaving the platform."[448] Likewise, as pursuant to point (f) of Article 4(1) of Regulation (EU) N. 524/2013 of The European Parliament and of the Council of 21 May 2013 on Online Dispute Resolution for Consumer Disputes,

> "Online marketplace" means a service provider, as defined in point (b) of Article 2 of Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ("Directive on electronic commerce"), which allows consumers and traders to conclude online sales and service contracts on the online marketplace's website.[449]

Therefore, the EU definition of a **marketplace** encompasses the idea of online platforms that allow traders to make their products and services available to consumers. Google also provides its own definition of a marketplace: "A *marketplace* is a commerce site that hosts products or websites of individual sellers on the same domain."[450]

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[447] "If Google is the dominant way we navigate the Internet, and thus the primary lens through which we experience both the local and the global, then it has remarkable power to set agendas and alter perceptions. Its biases (valuing popularity over accuracy, established sites over new, and rough rankings over more fluid of multidimensional models of presentation) are built into its algorithms. And those biases affect how we value things, perceive things, and navigate the worlds of culture and ideas. In other words, we are folding the interface and structures of Google into our very perceptions." Siva Vaidhyanathan, *The Googlization of Everything (And Why We Should Worry)* (Los Angeles: University of California Press, 2011), 7. Professor Vaidhyanathan's position is supported by many other scholars. See: Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (Cambridge: Harvard University Press, 2015); Tim Wu, *The Curse of Bigness: Antitrust in the New Gilded Age* (New York: Columbia Global Reports, 2018); and Shoshana Zuboff, *The Age of Surveillance Capitalism* (New York: Profile Books Ltd, 2019).

[448] Case AT.39740, Google Search (Shopping), 2017 E.C. § 191.

[449] Regulation (EU) 524/2013 of the European Parliament and of the Council of 21 May 2013 on Online Dispute Resolution for Consumer Disputes and Amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC (Regulation on Consumer ODR), 2013 O.J. (L *165*), http://data.europa.eu/eli/reg/2013/524/oj/eng.

[450] "About marketplaces," Google Merchant Center Help, Google Help, accessed December 10, 2020, https://support.google.com/merchants/answer/6363319?hl=en.

This would mean that Google Search is also a marketplace in a sense since its competitors in the markets related to its vertical search results wish and need to be ranked, viewed, and clicked on by users who access the platform. In the scenario of a combined search (horizontal and vertical), Google provides a marketplace to these companies and competes with them (in the case of a company that compares prices, suggests flights, ranks useful videos, etc.). It has transitioned its business model to an aggregated one where it competes with other companies in a primary and secondary market, directly providing the user with "answers" or "solutions" to its query.

The characterization of Google Search as a marketplace where a very complex and multifaceted bundle of interests come into play also derives from an understanding of the search market: the services appear free to consumers but, in fact, are funded by advertising on the other side of the market.[451] Like television and newspaper sponsors, Google's advertisers also pay for a service from the company—exposure on the internet.[452] For this reason, we need to address not only the issues concerning Google's possible competitors in the vertical search market for the purposes of our analysis, but also the characteristics of a business model that profits from advertisers who wish to be ranked on the results page in a place of prominence.[453]

Broadly speaking, if one compares Google's search engine with Amazon's shopping services, one can see that both of them simultaneously sell their own products or services online at the same time they also rank other sellers that either complement them or compete with them, in an order defined by their own respective algorithms. The more they know about the user navigating their sites, the more they can steer online traffic (and effective transactions in some cases) according to their interests or charge sellers for favorable

[451] Ana Frazão, "Big data e aspectos concorrenciais do tratamento de dados pessoais" in *Tratado de proteção de dados pessoais*, coord. Laura Schertel Mendes et al. (Rio de Janeiro: Editora Forense, 2021), 539; Guido Noto La Diega, "Data as Digital Assets: The Case of Targeted Advertising" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 485-486, https://doi.org/10.1007/978-3-662-57646-5. Katharine Kemp also reflects on the various uses of data in the digital economy and their inherent value, even in seemingly gratuitous markets: "[T]he collection and use of personal data is not so much a price paid, but an objective cost imposed on consumers in the process of digital transactions." Katharine Kemp, "Concealed Data Practices and Competition Law: Why Privacy Matters," *European Competition Journal* 16, no 2–3 (November 5, 2020): 632, https://doi.org/10.1080/17441056.2020.1839228.

[452] Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York: Crown Publishers, 2016), 74.

[453] "At least in terms of revenue generation, Google's core business isn't facilitating searches, it's selling advertising space—or rather—selling our attention to advertisers and managing both the price it charges for access to our attention and the relative visibility of those advertisements." Vaidhyanathan, *Googlization of Everything*, 26.

positioning of their products.[454] They both act as marketplaces where they not only host competitors (that compete among themselves and with Google/Amazon), but also compete with them and control which competitor will be seen first (or in a more appealing way) by their customers.

In July 2019, the European Commission opened investigations into possible anticompetitive conduct by Amazon in European markets, recognizing the dual role of the platform: "(i) it sells products on its website as a retailer; and (ii) it provides a marketplace where independent sellers can sell products directly to consumers."[455] According to the proceedings, this strategic position allows Amazon to use competitively sensitive market seller information to its own benefit and possibly restrict competition, either through anticompetitive agreements or by abusing the power of its dominant market position.[456]

In November 2020, the European Commission published a statement of objections against the company, noting that "very large quantities of non-public seller data are available to employees of Amazon's retail business and flow directly into the automated systems of that business, which aggregate these data and use them to calibrate Amazon's retail offers and strategic business decisions to the detriment of the other marketplace sellers."[457] This provides the company the valuable ability to boost its efforts to sell its own products across platforms by adjusting its prices in comparison to the data privately obtained from independent sellers.

Google's online search engine can also be considered a **two-sided platform** since it attends to the demands of both sellers (adverts) and customers (final user/consumer).[458] Also,

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[454] According to Eli Pariser: "Amazon users have gotten so used to personalization that the site now uses a reverse trick to make some additional cash. Publishers pay for placement in physical bookstores, but they can't buy the opinion of the clerks. But as Lanier predicted, buying off algorithms is easy: pay enough to Amazon, and your book can be promoted as if by an 'objective' recommendation by Amazon's software. For most customers, it's impossible to tell which is which. Amazon proved that relevance could lead to industry dominance." Pariser, *Filter Bubble*, 29-30.

[455] European Commission, "Antitrust: European Commission Opens Formal Investigation against Amazon," press release, July 17, 2019, https://ec.europa.eu/commission/presscorner/detail/en/IP_19_4291.

[456] European Commission, "Antitrust: Commission Sends Statement of Objections to Amazon for the Use of Non-Public Independent Seller Data and Opens Second Investigation into Its e-Commerce Business Practices," press release, November 10, 2020, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2077.

[457] European Commission, "Antitrust: Commission Sends Statement of Objections to Amazon for the Use of Non-Public Independent Seller Data and Opens Second Investigation into Its e-Commerce Business Practices," press release, November 10, 2020."

[458] Jean Tirole, *Economics for the Common Good*, trans. Steven Rendall (Princeton, N.J.: Princeton University Press, 2017), 391. Katharine Kemp also analyzes the two-sided nature of digital platforms, as well as how this configuration is beneficial to their businesses: "Consumers' personal data plays a critical role in these multisided platforms and the preservation of an incumbent's dominant position. [. . .] This aggregation of personal data will cause the platform's advertising customers to value the platform more highly and pay higher advertising fees to benefit from highly detailed profiling and segmenting of the platform's users as well as the users' attention to their advertising." Kemp, "Concealed Data Practices," 660. See also: Christian Rusche, "Data Economy and Antitrust Regulation," *Intereconomics* 54, no 2 (March 2019): 115,

"we can generally speak of a market as being two-sided if a business acts as a platform and sells two different products or services to two groups of consumers while recognizing that the demand from one group of customers depends upon the demand from the other group and/or vice versa."[459] In fact, another accurate description would be that Google acts as a **broker** of these transactions, and in the process of doing so, controls the prices of the ads on which the advertisers depend, even if by means of a fairer system than traditional advertising (pay-per-click).

European institutions, noticeably the European Commission and the Court of Justice of the European Union, have already addressed situations in which two-sided markets are involved, such as the MasterCard and VISA case regarding multilateral interchange fees (a two-sided market) and the Google Android case.[460] In the Google Android case, which will be addressed in the last section of this chapter, the European Commission found that tying services related to Google's search and Chrome applications to the Android operating system was restrictive to competition in both the search engine and the web browser markets.

Also of importance to our analysis is the fact that, over time, **information asymmetries** have lowered digital consumers' bargaining power and diminished their awareness of a lack of market competition.[461] On account of the fact that the very nature of a data-driven business model tends to profile its users in order to work with and profit from their needs and vulnerabilities, this asymmetric relationship allows for greater manipulation, behavioral modification, misinformation, and nudging.[462] Moreover, tracing causation in

https://doi.org/10.1007/s10272-019-0804-5; Penelope A. Bergkamp, "The European Commission's Google Shopping Decision: Could Bias Have Anything to Do with It?" *Maastricht Journal of European and Comparative Law* 26, no 4 (August 2019): 532, https://doi.org/10.1177/1023263X19853712.

[459] Nicola Boyle, Luke Grimes, and Julia Von Eitzen Peretz, "Two-Sided Markets: Competition Law in Europe," *Antitrust* 33, no. 3 (Summer 2019): 72, https://www.americanbar.org/digital-asset-abstract.html/content/dam/aba/publishing/antitrust_magazine/atmag-summer2019/smmr19-boylec.pdf.

[460] Boyle, Grimes, and Peretz, 73.

[461] Fabiana Di Porto and Mariateresa Maggiolino, "Algorithmic Information Disclosure by Regulators and Competition Authorities," *Global Jurist* 19, no. 2 (July 26, 2019), https://doi.org/10.1515/gj-2018-0048. Also, according to Jean Tirole, the difference in knowledge between different economic agents is pervasive and may cause distortions in the way these agents interact with one another: "This theory [information theory] is based on an obvious fact: decisions made by economic actors (households, firms, the state) are constrained by limited information. We see the consequences of these informational limits everywhere. They make it difficult for citizens to understand and evaluate policies of their governments, or for the state to regulate banks and powerful firms, to protect the environment, or to manage innovation. [. . .] The problem of limited (or 'asymmetric') information is everywhere: at the heart of institutional structures and of our political choices—and at the heart of economics for the common good." Tirole, *Common Good*, 12. See also: Llanos, "Close Look on Privacy Protection," 231-232; Kemp, "Concealed Data Practices,"662-663; Nicholas Economides and Ioannis Lianos, "Antitrust and Restrictions on Privacy in the Digital Economy," *Concurrences* 3 (September 2020): 7, https://www.concurrences.com/en/review/issues/no-3-2020/articles/antitrust-and-restrictions-on-privacy-in-the-digital-economy-en.

[462] According to Richar Thaler and Cass Sustein: "A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly

Google's manipulation of its ranking may prove extremely difficult in the absence of any kind of information regarding its algorithm's decision-making process. Additionally, the threshold for competition authorities to intervene in these relationships is high, as we will demonstrate next, given that a myriad of anti-competitive conditions has to be met in order to invite market interference.[463]

This situation also creates a lock-in effect,[464] which leads users to be "so invested in their technology that even if competitors might offer better services, it's not worth making the switch."[465] A network of users already adapted and systematically using certain applications in their day to day lives reinforces and perpetuates a cycle of service provision that becomes increasingly harder to beat through innovation, regardless of comparative quality.[466] Google efficiently implements a strategy that leverages this effect through a wide range of integrated services, in addition to a persistent preferential offer of their own applications when users are supposedly given a choice in a marketplace under Google's control, such as its search engine.[467]

Besides the issues established as prerequisites for filing anticompetitive claims, there are so many practical (not necessarily formal) barriers to entry for competitors in the search engine business that these companies cannot realistically compete with technology

changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not." Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (New Haven: Yale University Press, 2008), 6. Further information on the topic of consumer law and Google will be explored in detail in chapter 4.

[463] As will further be explained in this section, Article 102 of the Treaty on the Functioning of the European Union requires evidence of unfair trading conditions, the limiting of production, markets or technical development to the prejudice of consumers, and placing third parties at a competitive disadvantage, among other provisions. Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A12012E%2FTXT.

[464] This effect can be found in situations where consumers or users depend on a single service provider or product manufacturer and the costs of changing to another provider or manufacturer are substantial or impeditive, not in terms of money, but also convenience and interoperability, especially in the technology sector. Mark J. Tremblay, "Platform Competition and Endogenous Switching Costs," *Journal of Industry, Competition and Trade* 19, no. 4 (December 2019): 538, https://doi.org/10.1007/s10842-019-00301-8.

[465] As noted in the methodological section of this thesis, there is a very large and diverse body of legal literature on the subject of competition theory and all the aspects involved in Google's complex business model since the company acts both as a competitor, a marketplace and, for some, even as an essential facility. For the purposes of a theoretical, jurisprudential, and legal focus, my analysis is centered around the European aspects of competition, even though American authors, such as Eli Pariser, are cited to highlight Google's business model and provide factual basis for conceptualizations. Pariser, *Filter Bubble*, 40.

[466] Nick Srnicek, *Platform Capitalism* (Cambridge: Polity Press, 2017), 45-46.

[467] Additional reflections on the topic of algorithmic collusion will be explored in chapter 4, with a special focus on consumer relations and harm. See also: Björn Lundqvist, "Big Data, Open Data, Privacy Regulations, Intellectual Property and Competition Law in an Internet-of-Things World: The Issue of Accessing Data" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 203, https://doi.org/10.1007/978-3-662-57646-5.

behemoths like Google or Bing (owned by Microsoft).[468] Not only would they have to invest a tremendous amount of capital and human resources to achieve a parcel of Google's computing capacity and algorithmic efficiency, but they also would not have access to the vast amount of data that Google accumulates from its parallel applications such as Gmail, YouTube, and Google Maps. "In the context of massive Internet firms, competition is unlikely. Most start-ups today aim to be *bought* by a company like Google or Facebook, not to displace them."[469]

Despite its best efforts, the strategies and circumstances of Google have not been able to escape the interest of competition authorities in the European Union and the United States.[470] Preferential treatment towards its own applications by Google has already been the subject of unfair competition scrutiny by the European Commission. More specifically, in the Google Shopping case, which will be explored in better detail in the last section of this chapter, the Commission found that Google had "systematically given prominent placement to its own comparison shopping service," in addition to having "demoted rival comparison shopping services in its search results."[471] In addition to these conclusions, the Commission also stated that Google held a dominant position in the search engine market of European Union member states and that the company had "abused this market dominance by giving its own comparison shopping service an illegal advantage."[472]

According to Article 102 of the Treaty on the Functioning of the European Union (TFEU), **abuse of a dominant position** in a market can be characterized by a non-exhaustive list of actions from players that hold such power.

> Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States. Such abuse may, in particular, consist in: (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions; (b) limiting production, markets or technical development to the prejudice of consumers; (c) applying dissimilar

[468] "The markets for search engines, social networks and online marketplaces are all characterized by high levels of concentration and the presence of a super dominant firm, such as Google, Facebook and Amazon, respectively. Structural conditions such as high fixed costs and low marginal costs, strong direct and indirect network effects, switching costs and consumer inertia make entry into those markets very difficult." Llanos, "Close Look on Privacy Protection," 242. See also: Kemp, "Concealed Data Practices," 658.
[469] Pasquale, *Black Box Society*, 141.
[470] In the case of the US, the Federal Trade Commission (its main antitrust federal body) dismissed the case on the grounds that this was a design innovation from Google and that the combined results page represented an improvement in consumer welfare since users would have more options to choose from. See: Kokkoris, "Is There a Case?" 326.
[471] European Commission, "Antitrust: Commission Fines Google €2.42 Billion for Abusing Dominance as Search Engine by Giving Illegal Advantage to Own Comparison Shopping Service," press release, June 27, 2017, http://europa.eu/rapid/press-release_IP-17-1784_en.htm.
[472] European Commission, "Antitrust: Commission Fines Google €2.42 Billion."

> conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage; (d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts. [473]

Even though many authors directly relate a reduction in consumer welfare to price and quality,[474] there are other aspects of a dynamic market that need to be taken into consideration, such as choice and innovation.[475] Google Search can offer a free and extremely efficient mechanism for online queries while also reducing consumer choice and hampering innovation at the same time. Thus, when investigating a possible case of abuse of market dominance within the scope of the TFEU, one has to ponder these factors.[476]

In order to assess abuse of market dominance and consequent exclusionary conducts, the economic analysis of such scenarios first must take into consideration a clearly defined market.[477] For this reason, after the European Commission started scrutinizing Google's possible anti-competitive practices, it gradually divided the focus of its investigation into very specific and well-defined markets: Google shopping in the realm of vertical search, Google Android under the operating systems of mobile devices segments,

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[473] Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012.
[474] Kokkoris, "Is There a Case?" 324. See also: Aurelien Portuese, "Beyond Antitrust Populism: Towards Robust Antitrust," *Economic Affairs* 40, no. 2 (June 29, 2020): 246, https://doi.org/10.1111/ecaf.12401.
[475] According to Jay M. Strader, "As applied to dominant online platforms, the Treaty [TFEU] provision would appear explicitly to prevent Google from limiting economic activity, which would shrink the size, appeal, and profitability of markets economy-wide. The provision would apply most appropriately whenever liability would not jeopardize the incentive to invest in novel technology." Jay Matthew Strader, "Google, Monopolization, Refusing to Deal and the Duty to Promote Economic Activity," *IIC – International Review of Intellectual Property and Competition Law* 50, no. 5 (June 2019): 589, https://doi.org/10.1007/s40319-019-00818-9. See also: Khan, "Amazon's Antitrust Paradox," 737.
[476] Standardizing what constitutes illegal behavior of companies that dominate a market and attempt to exclude their competitors is one of the most important contributions of European law. This has resulted mainly from defining the responsibilities of a dominant company to its market's dynamics. This special responsibility imposes restrictions on how the company may determine its commercial strategy, including with regard to the exercise of its intellectual property rights. Pablo Leurquin, "Proteção da inovação pelo direito brasileiro da concorrência e diálogo com o direito da União Europeia" **(**PhD diss., Universidade Federal de Minas Gerais and Université Paris 1 Panthéon–Sorbonne, 2018), 208, https://repositorio.ufmg.br/handle/1843/BUOS-B9HH6G. Also, in favor of a broad concept of consumer welfare that includes competition enforcement for data protection violations, Inge Graef asserts: "[T]he main underlying goal of Article 102 TFEU as currently enforced by the EU Courts is to protect competition in order to enhance consumer welfare. As a result, a certain type of conduct which reduces competition is not necessarily abusive. What is decisive for the assessment under Article 102 TFEU is whether the reduction of competition caused by the behaviour of a dominant undertaking leads to consumer harm. The key issue raised by data protection advocates such as the European Data Protection Supervisor is whether the concept of consumer harm as applied in competition enforcement may include data protection-related violations." Inge Graef, "Blurring Boundaries of Consumer Welfare: How to Create Synergies Between Competition, Consumer and Data Protection Law in Digital Markets," in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 126, https://doi.org/10.1007/978-3-662-57646-5. See also: Iacobucci and Ducci, "Google Search Case in Europe," 20.
[477] Rusche, "Data Economy and Antitrust Regulation," 119.

Google Ads under the sphere of possibly abusive contractual clauses with advertisers and websites. This compartmentalization not only has helped with the analysis, but it also has assured that relevant markets are taken into account.[478] Additionally, the definition of abuse under Article 102 of the TFEU depends on the configuration of the actual market power and actual dominant position of Google in each of these cases.[479] It was also specially assessed if Google has denied access to competitors in these specific markets as prohibited by point (c) of Article 102.

Some barriers to entry for Google's competitors in the search engine marketplace are exogenous to Google Search's algorithms and stem from the way this market is configured.[480] These are related to scale (of Google's web crawling and computing capabilities, which are outstanding in size) and traffic volume, as Google's enormous traffic allows it to gradually perfect its performance tools by having a massive pool of users to test different and subtle changes to the way results are displayed.

For many scholars, it seems reasonable that these competing businesses, highly dependent on the marketplace of search engines, have some form of legal recourse against abuse of market dominance. "When a website's ranking suddenly tumbles dozens of places, and it has a plausible story about being targeted as a potential rival of Google, is it too much to ask for some third party to review the particular factors that led to the demotion?"[481] Means by which these circumstances can be explained were better explored in the previous chapter, but a minimum standard of transparency should be discussed when examining the conditions surrounding the abuse of market dominance.[482]

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[478] Bergkamp, "European Commission's Google Shopping Decision," 531.
[479] Rusche, "Data Economy and Antitrust Regulation," 116.
[480] Llanos, "Close Look on Privacy Protection," 242.
[481] Pasquale, *Black Box Society*, 161.
[482] "By using principles from data protection or consumer protection law as benchmarks for analysing whether abuse of dominance under competition law exists, the difficulties that competition authorities currently face with regard to the assessment of exploitative abuse may be overcome. Such an approach could enable competition enforcement to address new forms of anticompetitive behaviour in digital markets." Graef, "Blurring Boundaries of Consumer Welfare," 140. Regarding the conditions for the applicability of the essential facilities theory in tying of services cases, Iacobucci and Ducci explain: "Article 102(2)(d) TFEU provides that a dominant position may be abused by 'making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the nature of such contacts.' The treatment and general principles of tying under Article 102 TFEU has been shaped by the case law of European courts, and by the Commission's Guidance on Article 102 Enforcement Priorities published in 2009, which have expanded the scope of tying beyond the specific terms of Article 102(2)(d) and developed specific conditions for its applicability. In particular, the evolution in the legal evaluation of tying has resulted in a test that requires the following four elements under European competition law for a finding of anticompetitive tie: dominance in the tying product market, assessed using general principles applied under Article 102; tying and tied goods must be separate products, based on consumer demand; lack of consumer choice/coercion (although this criterion is only explicit in the case law but not in the Guidance paper); and anticompetitive foreclosure, whose meaning is however interpreted to some extent differently in the case law and the Guidance paper." Iacobucci and Ducci, "Google Search Case in Europe," 20.

Some analysts claim that Google is not indispensable to these secondary markets since users can find Google's competitors on other search engines and sites, such as social networks, content providers etc.[483] Also, a specialized search engine is not essential for competitors to exist, in the sense that a similar search engine platform can be replicated as an asset by them, as expensive as this may be.

The concept of one business being essential for others to exist is supported by the **Essential Facilities Doctrine** in Economic Law.

> The doctrine rests on two basic premises: first, a natural monopolist in one market should not be permitted to deny access to the critical facility to foreclose rivals in adjacent markets; second, the more radical remedy of dividing the facility among multiple owners, while mitigating the threat of monopoly leveraging, could sacrifice important efficiencies. [484]

Professor Scott Galloway argues that Google "has made itself into a **public utility**. It is ubiquitous, increasingly invisible in everyday use and, like Coke, Xerox, and Wite-Out before, it increasingly needs to reinforce the legality of its brand name for fear it will become a verb."[485] The idea of a company dominating a market to the point of potentially controlling it and the potential for abuse of such a position puts the company under constant and delicate antitrust scrutiny by the people policing the market.[486]

Though its institutions may have different parameters to handle the appropriateness of the essential facilities doctrine in practical cases, there is settled case law in the CJEU on this subject.[487] The Court has previously ruled that "in certain cases a dominant undertaking must not merely refrain from anti-competitive action but must actively promote competition

[483] Kokkoris, "Is There a Case?" 321.
[484] Sandeep Vaheesan, "Reviving an Epithet: A New Way Forward for the Essential Facilities Doctrine," *Utah Law Review* (March 8, 2010): 911, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1567238. See also: Iacobucci and Ducci, "Google Search Case in Europe," 24.
[485] Scott Galloway, *The Four: The Hidden DNA of Amazon, Apple, Facebook and Google* (London: Penguin Random House, 2017), 152.
[486] Rusche, "Data Economy and Antitrust Regulation," 115.
[487] "The Court of Justice has identified narrow set of circumstances under which the essential facility doctrine may be applicable, namely when the refusal to access the facility is likely to prevent any competition at all in the market, access is indispensable, and access is denied without any objective justification." Iacobucci and Ducci, 21. See also: Megan Browdie, Jacqueline Grise, and Howard Morse, "Biden/Harris Expected to Double Down on Antitrust Enforcement: No 'Trump Card' in the Deck," The New US Antitrust Administration, *Concurrences* no. 1, février 2021, 12, https://www.concurrences.com/fr/revue/issues/no-1-2021/dossier/what-is-biden-antitrust. See also: Joined Cases C-241/91 P & C-242/91 P, Radio Telefis Eireann (RTE) & Independent Television Publications Ltd (ITP) v. Commission of the European Communities, 1995 E.C.R.

by allowing potential competitors access to the facilities which it has developed."[488] The then Commission of the European Communities followed suit in several instances, stating that

> an undertaking in a dominant position may not discriminate in favour of its own activities in a related market. The owner of an essential facility which uses its power in one market in order to protect or strengthen its position in another related market, in particular, by refusing to grant access to a competitor, or by granting access on less favourable terms than those of its own services, and thus imposing a competitive disadvantage on its competitor, infringes Article 86 [of the EC Treaty].[489]

The gist of the essential facilities doctrine is that it "grants competitors right of access to monopolist facilities to the extent that these competitors depend on the facilities and cannot reasonably duplicate them."[490] Basically, instead of breaking up a dominant position holder in a certain market in order to allow for greater competition and innovation, competition authorities mandate a **right to critical infrastructure** be granted to competitors.[491]

This does not necessarily mean that competition downstream is in the process of being eliminated. In the case of vertical search, some applications can actually be quite successful in their own markets, such as those of TripAdvisor and Yelp, for instance.[492] An example of when an essential facilities claim may be warranted would be the case of a train company that also owns and manages all tracks across a territory. The company could profit from impeding competitors from using its railroads. It has no incentive to foster competition in its secondary markets. Deeming such unilateral approaches as damaging to competition and innovation, since other trains will not be able to use the gatekeeper's infrastructure, it may be in the best interest of society and the market to invoke an essential facility claim. If the claim is accepted, the competition gains the right of (paid) access to this critical asset.[493]

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[488] Case C-7/97, Oscar Bronner GrnbH & Co. KG v. Mediapfint Zeitungs-und Zeitschrfienverilag GrnbH & Co. KG and Others, 1998 E.C.R., Opinion of AG Jacobs § 34.

[489] Commission Decision of 21 December 1993 Relating to a Proceeding Pursuant to Article 86 of the EC Treaty (IV/34.689 - Sea Containers v. Stena Sealink – Interim Measures), 1994 O.J. (L 15) (94/19/EC) § 66, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31994D0019. See also: Donna M. Gitter, "The Conflict in the European Community between Competition Law and Intellectual Property Rights: A Call for Legislative Clarification of the Essential Facilities Doctrine," *American Business Law Journal* 40, no. 2 (Winter 2003): 217-300, https://www.researchgate.net/publication/229451122_The_conflict_in_the_european_community_between_competition_law_and_intellectual_property_rights_A_call_for_legislative_clarification_of_the_essential_facilities_doctrine.

[490] Nikolas Guggenberger, "The Essential Facilities Doctrine in the Digital Economy: Dispelling Persistent Myths," *Yale Journal of Law & Technology* (March 11, 2021): 2, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3802559.

[491] Portuese, "Beyond Antitrust Populism," 247-248.

[492] Kokkoris, "Is There a Case?" 321.

[493] There are several recent suggestions of treating datasets as essential facilities, a controversial topic that can be further explored here: Rusche, "Data Economy and Antitrust Regulation," 116.

Similar legal reasoning is applied in the digital realm. “Gatekeepers like Google, Amazon, Facebook, and Apple wield unprecedented power to exclude rivals from the marketplaces they control.”[494] As has been demonstrated throughout this work, Google provides services not only to its users but also to competitors of its own services (video, shopping, maps, email, news, etc.) through many of its applications.[495] With regard to Google’s search engine, some competitors see themselves as having to rely on the Silicon Valley giant as an intermediary in order to reach their customers, who generally become aware of their businesses mainly through a specific query or a results page that may or may not rank them well. Google has made the interdependence that exists between it and its rivals very clear in its business relations: the other companies have to allow Google to scrape content from its websites, which is used not only for indexation on the search engine but also to give advantages to Google’s own products and services. If the other companies do not provide access to this information, they would not be listed at all on Google Search.[496]

Through this competitive advantage in its primary market, Google maintains its own secondary applications ahead of those of possible competitors in other markets. It controls both the marketplace and its advantage over competitors through the mechanisms of its vertical search. “[...] Size then trumps quality and innovation. This shift creates incentives for a platform to close in on the competition and push independent actors out of the marketplace.”[497]

Even though different jurisdictions will perceive and apply the reasoning behind this theory in different ways (and require distinct legal requisites in order to do so), academics and legal scholars of competition law are usually familiar with the concept of essential facilities. It was more common in jurisprudence in the past than it currently is. However, some experts will argue all signs point toward a revival of more robust antitrust actions in the United States under the Joseph Biden presidency, and if this is the case, the essential facilities doctrine may resume its prominence in legal rationale.[498]

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[494] Guggenberger, “Essential Facilities Doctrine,” 7.
[495] “Because Google is the dominant provider of online search, this ecosystem of vertical sites relies on Google to be seen and discovered by users.” Lina M. Khan, “The Separation of Platforms and Commerce,” *Columbia Law Review* 119, no 4 (May 2019): 997, https://columbialawreview.org/content/the-separation-of-platforms-and-commerce/.
[496] Khan, 999.
[497] Guggenberger, 17. See also: Khan, “Amazon’s Antitrust Paradox,” 754.
[498] Andrew Ross Sorkin et al., “The Rise of an Antitrust Pioneer,” *The New York Times*, March 10, 2021, Business, https://www.nytimes.com/2021/03/10/business/dealbook/lina-khan-antitrust.html. See also: Alden F. Abbott, “Competition Policy Challenges for a New U.S. Administration: Is the Past Prologue?” The New US Antitrust Administration, *Concurrences* no. 1, février 2021, 2, https://www.concurrences.com/fr/revue/issues/no-1-2021/dossier/what-is-biden-antitrust.

Historically in the United States, a four-step test has been applied to evaluate if remedies under the essential facilities doctrine would be granted: "i) the monopolist controls access to an essential facility; ii) the facility cannot be practically or reasonably duplicated by a competitor; iii) the monopolist denies access to a competitor, and iv) it is feasible for the monopolist to provide access."[499] Though its institutions may be more interventionist and *ex-ante* than those of the United States, there is hardly a consensus in the European Union on how the essential facilities doctrine should apply in practical cases. In the Google cases, moreover, its pertinence was also the subject of academic and legal dispute.

In both the contexts of the United States and the European Union, this doctrine has not been used indiscriminately. It has suffered ups and downs throughout the 20th century and has recently been rekindled by academics studying the digital realm, such as Lina Khan and Tim Wu.[500]

In the case of Google's search engine, there is so much value in the extraction of data from users by the platform, alongside a lack of transparency that would allow for competitors to estimate the value and the potential harms that Google's decision-making algorithm can create, that one is compelled to consider the applicability of the reasoning behind the essential facilities in this context of extremely dynamic competition.[501] "Google's algorithm and dominance of search has become a bottleneck facility, which prevents other competitors from accessing the necessary network. Today's equivalent of electric transmission lines is the Internet."[502]

Even though this doctrine allows for a business to hold what amounts to a basically monopolistic position in a given market (without being subjected to a breakup), it also requires businesses to allow rivals to blossom in secondary markets, granting them access to what is considered a facility essential to the existence of these newcomers. Usually, this type of analysis and consequential requirements are enforced through regulatory oversight, by competition authorities, or judicial recourse.[503]

Critics of the essential facilities doctrine traditionally claim that market mechanisms can usually self-correct gatekeeping powers, that courts lack consistency and often impose arbitrary enforcement of competition rules, and that judges and administrative agencies are

[499] Khan, "Separation of Platforms and Commerce," 1025-1026.
[500] Guggenberger, "Essential Facilities Doctrine," 14.
[501] Frazão, "Big data e aspectos concorrenciais," 547.
[502] Mays, "Consequences of Search Bias," 756.
[503] Khan, "Amazon's Antitrust Paradox," 801.

not in a good sectorial position to evaluate market conditions and prices.[504] Overall, such criticism fails to acknowledge the institutional oversight capacity and nature of competition authorities and judicial review, especially in cases of such relevance and consequence. As a competition enforcement authority, the European Commission must not shy away from considering the hypothesis of harm to consumers due to the abuse of dominant positions.[505] Furthermore, more specialized courts could be of great service to antitrust cases and strengthen enforcement agencies.[506]

One of the most significant challenges of the information economy is the creation of value through data. Unlike tangible products, which are naturally scarce and thus engender natural competition among themselves, digital (thus intangible) information needs to be privatized in order to generate profit. Legally, you can achieve this through laws, such as intellectual property rights protections, but also by maintaining a material monopoly of access to that information, through encrypted algorithms, for example.[507] Google does the latter by extracting information (from users) and selling the refined knowledge rendered from such information to advertisers.

Autocomplete is also a revealing feature of search engines because it steers users into formulating a specific question at the stage of typing it, with specific suggestions, either to correct spelling or to discern intent through keywords already typed.[508] This is another way Google maintains control over the main source of the information on which it relies to generate profit. In the second phase of surveillance capitalism, the extraction of data is followed by the creation of an execution architecture, which is filled with economic objectives that inconspicuously shape and drive users' behavior, especially as consumers.[509] "Overall, Google orders our behavior and orders the Web without raising concerns that it is

[504] Guggenberger, 18-20. See also Aurelien Portuese's definition of "antitrust populism:" "antitrust populism can simply be defined as the populist use of competition policies. [. . .] Antitrust populism springs from a 'big is bad' mentality that blames corporations for their sheer size, and not necessarily for their potentially detrimental effects on consumer welfare, which is the conventional criterion for antitrust analysis; and antitrust populism aims to use competition policy for achieving socio-political goals for which antitrust laws are far less suited than other areas of law." Portuese, "Beyond Antitrust Populism," 238.
[505] Although the author disagrees with some of the European Commission's recent approaches towards antitrust and big tech, he correctly asserts that: "From an institutional perspective, a robust political economy perspective would mean that independence of antitrust agencies in a decentralised system of government should remain essential to the public decision-making process." Portuese, 250. See also: Rusche, "Data Economy and Antitrust Regulation," 115.
[506] Guggenberger, "Essential Facilities Doctrine," 21.
[507] Kenzo Soares Seto, "Acumulação capitalista por meios digitais: Novas teorias da mais-valia e da espoliação do General Intellect," *Revista Eletrônica Internacional de Economia Política da Informação, da Comunicação e da Cultura* 22, no. 1 (January/April 2020): 150, https://seer.ufs.br/index.php/eptic/article/view/13044.
[508] Pasquale, *Black Box Society*, 72.
[509] Zuboff, *Age of Surveillance Capitalism*, 203.

overbearing."[510] Under these circumstances, surveillance capitalists generate wealth not just from the information monopoly they hold, but also through the ability this monopoly creates for them to steer users' behavior as they please.[511]

There is a general consensus that a search engine platform is perceived by users as a reliable means to access information and, thus, if results are skewed, users have the potential to be misled.[512] However, when we look at Google Search as a marketplace and consider Google's relationship with advertisers and businesses that wish to be ranked well on the results page (as unsponsored results), it is clear that these business customers are subject to being misled as well. So, either relationship is in jeopardy of being wrongfully appropriated by Google's intent to "tweak" results and abusively exploit its dominant position in its market, which has already been proven in competition cases by the European Commission.[513]

According to Julian Assange, as Google's monopoly grows, not only in the search engine business, but also among mobile communication services, especially through its Android operating systems, Google becomes the very concept of the internet to many people, influencing their choices and behavior. This translates into real power to change the course of history.[514] As a matter of fact, during the daily routine of an ordinary internet user, hardly a day goes by without them making a query on Google's search engine, whether it be to find an address or a telephone number, to check the spelling of a word, to discover the best place to buy a product or contract a service, or to research the latest articles on a particular subject. These are all indispensable features that users worldwide have incorporated into their lives. Furthermore, there is no comprehensive questioning of its motives and results by its users nor adequate mechanisms to challenge these results if such were the case.

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[510] Vaidhyanathan, *Googlization of Everything*, 15.

[511] As Shoshana Zuboff describes it, "just as surveillance capitalism transformed the web into a market onslaught fueled by the capture and analysis of behavioral surplus, so everyday life is set to become a mere canvas for the explosion of a new always-on market cosmos dedicated to our behavior and from which there is no escape." Zuboff, *Age of Surveillance Capitalism*, 269.

[512] As stated by Jay M. Strader, businesses have a special interest in how results are displayed on the results page of Google Search: "A business that otherwise would appear on the first page, or that Google artificially lowered from, say, first to ninth, could claim that Google degrades the quality of its organic search results by promoting the rank of less relevant links to coerce users to click on paid results. Alternatively, Google could lower the rank of potential advertisers in organic results to create a stronger incentive to purchase ads." Strader, "Google, Monopolization," 573.

[513] According to Ratliff and Rubinfeld, a fundamental distinction must be made between non-paid results ("organic" search) and paid results: "In isolation organic search generates no revenue but requires substantial sunk investments and ongoing operational costs; in itself organic search offered for free is unprofitable." James Ratliff and Daniel L Rubinfeld, "Is There a Market for Organic Search Engine Results and Can Their Manipulation Give Rise to Antitrust Liability?" *Journal of Competition Law and Economics* 10, no. 10 (September 2014): 534.

[514] Julian Assange, *When Google Met WikiLeaks* (London: OR Books, 2014), 46.

Such a stalwart presence provides an even more fructiferous environment for advertising. "That is why search services, social and not, are 'must-have' properties for advertisers as well as users."[515] As such, since the prevalence of Google's search engine is so unmitigated, and its inner-workings are so opaque, it is crucial to not only examine how they can "help to create the world they claim to merely 'show' us,"[516] but also to examine why the company managed to forestall scrutiny and pressure for transparency and accountability for so long.

The alternative to scrutiny of algorithmic-based business models, in which a company such as Google acts both as a marketplace and a competitor, is for these relationships to go unregulated and innovative competition become a myth of the digital economy. Furthermore, "antitrust law flirts with irrelevance if it disdains the technical tools necessary to understand a modern information economy."[517] Moreover, according to Shoshana Zuboff, "each failure to establish bearings contributes to habituation, normalization, and ultimately legitimation."[518]

Time and again, smaller, innovative and disruptive businesses are bought by larger tech companies that are able to fund, scale up, and internationalize their ideas, in addition to neutralizing their immediate competition.[519] Generally speaking, this has become the norm in the lifespan of startups, not just in Silicon Valley, but elsewhere.[520] In other words, both the behavior arising from algorithm-based business models and their strong interdependence with a few technological giants like Google raise questions regarding the existence of meaningful and effective competition in secondary markets, the lack of which could threaten the future of innovation in the digital realm.

All things considered, one may regard that one solution to induce more competitiveness, innovation, and economic welfare may be to challenge the conditions in which these market players interact, specifically in the scenario of a search engine such as Google Search, the subject of this analysis. In order to achieve this goal, the very idea of intellectual property rights (and its correlated *sui generis* counterparts, such as trade secrets), with regard to algorithms, must be reevaluated since the current legal standards protecting

[515] Pasquale, *Black Box Society*, 61.
[516] Pasquale, 61.
[517] Pasquale, 162.
[518] Zuboff, *Age of Surveillance Capitalism*, 292.
[519] Jamie Bartlett, *The People Vs Tech: How the Internet Is Killing Democracy (And How We Save It)* (London: Penguin Random House, 2018), 137. See also: Van Loo, "Digital Market Perfection," 845.
[520] Julie Bort, "Waze Cofounder Tells Us How His Company's $1 Billion Sale to Google Really Went Down," *Business Insider*, August 13, 2015, https://www.businessinsider.com/how-google-bought-waze-the-inside-story-2015-8.

them may actually be hindering innovation and harming consumers. In the next chapter, we will analyze how this could occur in practice.

3 Trade Secrets in the Era of Search Engine Optimization: Data Access and Profiling

There is a major feedback loop when it comes to advertisers and the response their ads reap from users online. The "internet provides advertisers with the greatest laboratory ever for consumer research and lead generation."[521] This is on account of the fact that some platforms are able to reach millions of users, with little marginal cost, and rapidly develop and fine tune different strategies for what they are attempting to transform into users' clicks: different pictures might be more persuasive with some users instead of others; various colors can lead to different responses according to the users' age, gender, and social background; the wording and even the font of certain ads might produce different levels of engagement; among other examples.

With regard to search engines, each new query trains its algorithm to find a perfect match between the user's and the platform's interests. If the first listed results do not generate very many clicks, it may be the case that they were not that relevant to the user. On account of the large number of users performing searches every second worldwide, in addition to Google maintaining access to all data it extracts, Google's search engine acquires immense competitive advantages throughout time.[522]

Therefore, there is nowadays great power in matching users' personal interests (and characteristics) with advertisers' promotions, especially when carried out by big tech companies. By constantly working on research and development for these algorithms, one is able to create the perfectly personalized environments for each segment of their public.

> The new generation of Internet filters looks at the things you seem to like—the actual things you've done, or the things people like you like—and tries to extrapolate. They are prediction engines, constantly creating and refining a theory of who you are and what you'll do and want next. Together, these engines create a unique universe of information for each of us—what I've come to call a filter bubble—which fundamentally alters the way we encounter ideas and information.[523]

[521] O'Neil, *Weapons of Math Destruction*, 75.
[522] Pasquale, *Black Box Society*, 82.
[523] Pariser, *Filter Bubble*, 9.

According to Google, "beyond simple keyword matching, we use aggregated and anonymized interaction data to assess whether search results are relevant to queries. We transform that data into signals that help our machine-learned systems better estimate relevance."[524] The same institutional explanation about how its search engine works reveals that it allows for the tailoring of results according to recent search activities, location, and interests inferred from users' Google accounts, along with other personal information.[525] The company also claims that its mission is to deliver relevant and reliable information to users, maximizing access to information and presenting results in the most useful way possible.

This institutional approach to search is also subject to critical interpretation. In a September 12, 2018 interview, former Google lawyer Nicole Wang commented on the gradual but steady transformations the company has undergone, both during her time as legal counsel there and afterward, since she worked for the company from 2004 to 2011. She was asked specifically about the transformations of the principles behind Google's search engine.

> When I first started at Google, I remember having conversations around the pillars of design for search. I don't think they called it exactly that, but it was like the principles on which you design search. And it might have been Matt Cutts [former member of Google's search quality team] that said there's **comprehensiveness**, we want all the information we can get; there's **relevance**, meaning we deliver the right response when someone asked a question; and **speed**. Those were the three pillars of search. And then in the mid-2000s, when social networks and behavioral advertising came into play, there was this change in the principles that ... we just weren't as concerned about search anymore, instead we were focusing on this other part of the platform. And the dynamics were around **personalization**, which is not relevance, right? [...] Personalization, **engagement** ... what keeps you here, which today we now know very clearly. It's the most outrageous thing you can find. And **speed**. Right, so speed's still there, but the first two have changed, and that has, I think, propelled this crazy environment that we're in now.[526]

Her statement, based on direct experience in the company's highest hierarchical strata, provides a thought-provoking notion about the core values of the search engine and, in a sense, of the company itself. If Google's search principles went from comprehensiveness, relevance, and speed to personalization, engagement, and speed, all the evidence suggests that the incorporation of surveillance capitalism into their business model oriented its

[524] "How Search Algorithms Work," How Search Works, Google, accessed August 30, 2020, https://www.google.com/intl/en/search/howsearchworks/algorithms/.

[525] "Relevance thus tends to mean something akin to value, but it is a relative and contingent value, because relevance is also calculated in a way that is specific not just to the search itself, but also to the search history of the user." Vaidhyanathan, *Googlization of Everything*, 21. See also: Llanos, "Close Look on Privacy Protection," 231.

[526] Eric Johnson, "Full Q&A: Former Google Lawyer and Deputy U.S. CTO Nicole Wong on Recode Decode," *Vox*, September 12, 2018, Recode, https://www.vox.com/2018/9/12/17848384/nicole-wong-cto-lawyer-google-twitter-kara-swisher-decode-podcast-full-transcript (my boldface).

practices. Frank Pasquale's analysis echoes what Wang describes in her account, stating that Google's "business focus has shifted from the need to *attract more users* to the need to *monetize what the viewers see.*"[527]

Comprehensiveness was a key feature for Google to assert its importance in the search engine business in its initial stages of development. Indexing the entire content of the flourishing internet differentiated it from other websites, which were not efficient in this matter because they worked more like segmented directories that usually charged businesses to be listed and were too complicated for regular users.[528] **Relevance** entailed an adequate choice of results provided to users: if the results increasingly matched their intentions in terms of predictability, correctness, and appropriateness, usage and Google's market share would naturally increase.[529]

Following the consolidation of the company and its market share, its values transitioned to **personalization** and **engagement**, which are essential to Google's current and actual profitable service: advertising. By keeping users active on its platforms and acquiring as much data as possible to profile them, Google is able to offer more and more efficient results to its advertisers.[530] Nonetheless, while personalization yields economic power to Google, it renders vulnerability to users, which become ever more susceptible to advertising.[531]

This resilient business model still guides the company when adding new features to its vertical search, defining the best marketing strategies, and determining other criteria to guide its search engine's results page. Considering that personalization of results provides a substantially individualized user experience of search engines, it is difficult to evaluate and compare results in order to analyze bias and scrutinize the way the platform works. According to Frank Pasquale, "Google results have become so very particular that it is

[527] Pasquale, *Black Box Society*, 98.
[528] "The History of Search Engines," *WordStream*, accessed August 11, 2020, https://www.wordstream.com/articles/internet-search-engines-history.
[529] It is crucial to realize that, in order "to provide relevance, personalization algorithms need data. But the more data there is, the more sophisticated the filters must become to organize it. It's a never-ending cycle." Pariser, *Filter Bubble*, 38. Regarding the lack of incentives against personalization, Katharine Kemp asserts: "In this context, suppliers have an incentive to accumulate a wide range of increasingly detailed personal information about an enormous number of consumers, and to persuade consumers to permit this to occur. This incentive often leads suppliers to use hidden tracking technologies, and conceal their data practices from the consumers they are investigating, lest consumers experience concern about these practices and object." Kemp, "Concealed Data Practices," 637.
[530] "[W]e are not Google's customers: we are its product. We—our fancies, fetishes, predilections, and preferences—are what Google sells to advertisers. When we use Google to find out things on the Web, Google uses our Web searches to find out things about us. Therefore, we need to understand Google and how it influences what we know and believe." Vaidhyanathan, *Googlization of Everything*, 3.
[531] Pasquale, 79.

increasingly difficult to assess how much of any given subject controversy any of us actually sees."[532] This problem stems from the fact that personalization and engagement have replaced comprehensiveness and relevance as guidelines for computer engineers who develop and improve Google's algorithms.

Furthermore, it is worth questioning the underlying processes of classifying something as relevant or important. One of the main criteria is relational: the more links to it, the more relevant a website is.[533] Therefore, it would have better chances of being ranked at the top of the results page. This strategy of classification also resonates with the academic background of Google's creators. At Stanford University, Larry Page internalized a criterion for assessing relevance very similar to that used for assessing the impact of academic journal articles, determined by a metric devised to count the average number of citations received by articles over a period of time that thus reflects the given importance of a journal. "Like academic papers, he realized, the pages that a lot of papers cite—say, the front page of Yahoo—could be assumed to be more 'important,' and the pages that those pages voted for would matter more."[534] This manner of assessing relevance combines both a horizontal approach that considers any given link online and a hierarchy that deems some links more important, trustworthy, and authoritative than others.[535]

Similar reasoning can be applied to the growing question of how applications are ranked and listed on app stores, particularly Google and Apple's (Play Store and Apple Store, respectively). Are they ranked solely based on users' ratings? Do they take into consideration users' personal information in order to assess relevance? Are applications from the same company as the app store listed first regardless of their relevance to the users' query for a particular app? These are all questions similar to those asked in this analysis of Google's search engine and by detractors of Amazon's marketplace.

The comparison is valid, especially if we consider the competition scenario in the case of Amazon, which is a monumental player in the online market nowadays. Besides selling third-party products, Amazon is also a retailer and maintains its own inventory of products.[536] Regardless of whose products it is selling, its goal is to reach ever-growing audiences online and to sell more. In order to do so, it invests heavily in understanding

[532] Pasquale, *Black Box Society*, 79.
[533] "It wasn't just which pages linked to which that Brin and Page were interested in. The position of a link on the page, the size of the link, the age of the page—all of these factors mattered. Over the years, Google has come to call these clues embedded in the data *signals*." Pariser, *Filter Bubble*, 22.
[534] Pariser, 31.
[535] Pasquale, 64.
[536] Khan, "Amazon's Antitrust Paradox," 731.

consumer behavior, and this is a major reason for Amazon's success.[537] It goes beyond the superficial level of input that the user gives (what Shoshana Zuboff calls "the first text"[538]), like age, location, and gender. It digs deeper into behavioral economics, tracing patterns such as shopping habits, abandonment ratio at checkout, past issues with delivery, percentage of bad reviews, and a heat map of the users' cursor on the website, among other indicators.[539]

The second layer of text, which Zuboff characterizes as behavior surplus,[540] is also deciphered by the algorithms' continuing improvement in linguistic skills for analyzing natural language, which has advanced greatly over the last decade, as well as the simpler "datafication" provided by the ever-growing use of home assistance devices, wearables, emojis, gifs, and stickers in online communication. Since algorithmic programs are well-skilled in the art of interpreting words and similar inputs from the user, they further enhance advertisers' capabilities to "probe for deeper patterns" in users' behavior.

Behavior surplus is also part of the logic behind PageRank, though, in reality, it is considerably more complex. PageRank was patented in the United States,[541] and since then "improved" and complexified in various ways to avoid Search Engine Optimization (SEO).[542] Google gradually revealed this ranking criterion based on importance and other factors, which then prompted businesses of all sorts to try to manipulate its algorithm in order to appear on top of the first results page of the platform.[543] These businesses do this as an attempt to direct more traffic from Google search to their websites, and this has become part of their online marketing strategy, in addition to placing advertisements in a variety of media and sending offers through email.

One of the reasons why algorithm-based business models also push for secrecy is the fact that it is precisely the algorithms' obscure quality that makes them competitive and, supposedly, inscrutable.[544] Were the rules as to how a search algorithm works actually known, it could be replicated and manipulated by competitors on the platform. One form of manipulation would be **Search Engine Optimization**. Most likely, without a certain amount

[537] Llanos, "Close Look on Privacy Protection," 243.
[538] Zuboff, *Age of Surveillance Capitalism*, 186.
[539] O'Neil, *Weapons of Math Destruction*, 98.
[540] Zuboff, 186.
[541] John Anthony Tomlin, Andrew S. Tomkins, and Arvind Arasu. System and method for rapid computation of PageRank. US Patent US7,089,252 B2, filed April 25, 2002, and issued August 8, 2006, https://patents.google.com/patent/US7089252B2/en.
[542] Tomlin, Tomkins, and Arasu, US Patent US7,089,252 B2.
[543] In order to achieve this, websites full of links to the businesses' pages were created, for example. The idea was for these websites to give web crawlers the impression that a lot of different links online were going to a specific website, thus making it "important."
[544] Kirsten Martin, "Ethical Implications and Accountability of Algorithms," *Journal of Business Ethics* 160, no. 4 (December, 2019): 846-847, https://doi.org/10.1007/s10551-018-3921-3.

of secrecy surrounding its algorithms, Google's search results would be less credible and more susceptible to influence from third parties.[545]

Broadly speaking, search engine manipulation consists of an evolving set of techniques and "efforts intended to improve the ranking of a website in the search results for given target keywords."[546] The strategies adopted by competitors that aim to be better ranked on Google's results page may comprise, although they are not limited to: including links to well-reputed websites in order to increase the level of authority on a particular subject; using keywords in titles, subtitles, and the URL of such websites; maintaining a constant use of terms semantically-related to the keywords throughout a given text on such websites.

Such manipulation was at the core of the Google AdWords case, which involved trademarks owned by Louis Vuitton. Advertisers were using competitors' keywords (*i.e.,* "Louis Vuitton") in order to place their ads in a strategic position when end users performed related queries on Google's search engine. These advertisers sold competing or counterfeited products. The court found that it was lawful to purchase trademarks as keywords, as long as it did not provoke a likelihood of confusion in average consumers, including a likelihood of association.[547]

Another example of the importance of secrecy to digital platforms is the fact that the added value of YouTube's recommendation system, Facebook's curated feed, and Instagram's engagement ratio relies on core algorithms that are not completely disclosed. Of course, there is the possibility of making assumptions based on the input provided and the outputs given by the platforms. In a scenario where users, advertisers, or competitors are able to "hack" the system and draw more attention to themselves, there would be less value for the platform itself.[548]

Thus, all things considered, one can assume that one incentive for search engines not to disclose the inner workings of their algorithms is to protect themselves from an unbalanced search engine optimization conducted by businesses that wish to be better ranked on the

[545] Pasquale, *Black Box Society*, 35.
[546] Cheng-Jye Luh, Sheng-An Yang, and Ting-Li Dean Huang, "Estimating Google's Search Engine Ranking Function from a Search Engine Optimization Perspective," *Online Information Review* 40, no. 2 (April 11, 2016): 241, https://doi.org/10.1108/OIR-04-2015-0112.
[547] Joined Cases C-236/08 & C-238/08, Google France SARL & Google Inc. v. Louis Vuitton Malletier SA and Others, 2010 E.C.R. § 99.
[548] "The gaming behavior may also take the form of altered input, which aims to improve some proxy features without actually improving the underlying attributes that the system aims to reinforce. For instance, while a loan applicant may choose to pay her bills on time to increase her credit score, she can also invest in efforts to discover the proxy features and heuristics that she could manipulate to present herself as if she was creditworthy." Emre Bayamlıoğlu, "The Right to Contest Automated Decisions under the General Data Protection Regulation: Beyond the So−called 'Right to Explanation'," *Regulation & Governance* (March 14, 2021): 11, https://doi.org/10.1111/rego.12391.

platform. Avoiding hacks and recognizing anomalous relevance traits of websites is part of Google's business model and contributes to the quality of its search results.[549] The total exposure of their algorithms may "drive certain users to implement result manipulation strategies that guide internet users towards offers of little value or worse, ones that are expensive and of no interest to the user"[550] (my translation).

Regulation 2019/1150, which aims to promote fairness and transparency for business users of online intermediation services, provides somewhat of a balanced middle ground between trade secrets and complete algorithmic transparency.

> Providers of online intermediation services and providers of online search engines shall, when complying with the requirements of this Article, not be required to disclose algorithms or any information that, with reasonable certainty, would result in the enabling of deception of consumers or consumer harm through the manipulation of search results. This Article shall be without prejudice to Directive (EU) 2016/943.[551]

Therefore, there is already an institutional attempt to level the playing field in a way that both recognizes the rights of trade secret owners and promotes a certain level of transparency with regard to the "main parameters determining ranking and the reasons for the relative importance of those main parameters as opposed to other parameters."[552]

The intention of this stance has already been set out in the proposal for the Digital Services Act from the European Commission, in December 2020, which will be further explored in this chapter.

> Online platforms that display advertising on their online interfaces shall ensure that the recipients of the service can identify, for each specific advertisement displayed to each individual recipient, in a clear and unambiguous manner and in real time: (a) that the information displayed is an advertisement; (b) the natural or legal person on whose behalf the advertisement is displayed; (c) meaningful information about the main parameters used to determine the recipient to whom the advertisement is displayed.[553]

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[549] Frédéric Marty, "La protection des algorithmes par le secret des affaires: Entre risques de faux négatifs et risques de faux positifs," *Revue internationale de droit économique*, t.XXXIII, no 2 (2019): 224, https://doi.org/10.3917/ride.332.0211.
[550] Marty, "La protection des algorithmes," 226.
[551] Article 5.6. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on Promoting Fairness and Transparency for Business Users of Online Intermediation Services (Text with EEA Relevance), 2019 O.J. (L *186*), http://data.europa.eu/eli/reg/2019/1150/oj/eng.
[552] Article 5.1. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[553] Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC, 2020, COM/2020/825 final, https://eur-lex.europa.eu/legal-content/en/TXT/?qid=1608117147218&uri=COM%3A2020%3A825%3AFIN.

This proposal stems from the Digital Single Market Strategy and the Digital Single Market Directive.[554] With this legislation, which is already in force, the European institutions aim, among other things, to redistribute the increasingly concentrated wealth and market power of Silicon Valley's tech juggernauts in the European market. To the detriment of traditional media platforms such as telecoms and content providers, aggregators of content like Google and Facebook have reaped the benefits of user engagement, monetizing attention and clicks, without necessarily distributing such profits in what may be considered a fair way with content creators.

With regard to SEO, following the EU's establishment of certain provisions (Regulation 2019/1150), I believe that it is necessary to strike a balance between demoting users that are "hacking" the system to manipulate results (given by the algorithm) and the quest for somewhat more neutral results with regard to relevance to the user.[555] Certainly, there is no such thing as perfect search neutrality; neither would such a thing be beneficial to users, but it can be somewhat envisaged through greater transparency regarding the parameters used in the decision-making process of algorithms.[556]

Nonetheless, this effort toward neutrality creates an additional challenge for regulators working under a black box regime regarding trade secrets,[557] because this regime gives rise to opportunistic actions, both from businesses that want to be on the results page and platforms that wish to demote their competition, which was the case of Google Shopping, for instance. The results of such conduct are false positives and false negatives, respectively, and this leads us to other fundamental aspects of algorithmic explainability: transparency and accountability.[558]

It seems that SEO does not depend necessarily on neutrality, neither on the absence of neutrality, but on the fact that the criteria used to rank pages can be inferred by a business, which can help them improve their positions on the results page.[559] It is not a matter of hacking the trade secret of the algorithm because the exact functioning of the algorithm is

[554] Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC, 2019, O.J. (L 130), https://eur-lex.europa.eu/eli/dir/2019/790/oj.
[555] Vaidhyanathan, *Googlization of Everything*, 62.
[556] "The most important consequence of search neutrality is that by making search engine results uniform, competitors would no longer have an incentive to innovate by investing in enhancing consumers' value." Kokkoris, "Is There a Case?" 331. See also: Mays, "Consequences of Search Bias," 730.
[557] Pasquale, *Black Box Society*, 3.
[558] Marty, "La protection des algorithmes," 227.
[559] "A better approach, however, is to examine why the search engine altered the search results in that specific manner. The explanation for the bias will help in evaluating whether the search engine engages in unfair behavior under antitrust law." Mays, 731.

rather complex and impossible to fully grasp from the standpoint of the user, who does not have access to its source code.

4 The Unbalanced Importance Given to Trade Secrets and the Future of Innovation Online

Shoshana Zuboff asserts that, so far, civil society, academia, and some governments have only attempted to curb big tech issues via two parallel paths, notably in the European Union: competition and privacy.[560] While one of the goals of competition regulation is to prevent monopolies that abuse dominant positions in the market or thwart innovation, privacy regulations seek to assert privacy rights, empower users, and create minimum standards of protection. However, according to Zuboff, neither one of these paths has resulted in actual constraints on surveillance capitalists' "mechanisms of accumulation, from supply routes to behavioral futures markets," mechanisms that have given them unchecked power over personal information and access to information.[561]

Accepting technologies, their pervasiveness, their collection of personal data, and the increasing "datafication" of ordinary day-to-day transactions has become the new normal.[562] Views that oppose it, or even that offer some sort of critical resistance to it, are regarded as belonging to eccentric techno-phobic hermits, an endangered species that is wary of home assistants, GPS trackers, smartwatches, and social networks, despite how indispensable these resources are poised to become according to marketing strategists.[563]

According to Zuboff, "we accept the idea that technology must not be impeded if society is to prosper, and in this way we surrender to technological determinism."[564] Thus,

[560] Zuboff, *Age of Surveillance Capitalism*, 62.
[561] Zuboff, 188.
[562] These datafication processes are related to an extraction imperative in which every type of behavior counts as data to be collected, observed, rendered, and exploited. See: Zuboff, 211.
[563] A recent Forbes article, interestingly sponsored and signed by T-Mobile for Business, a mobile phone telecommunications company, exclaims: "Imagine a future where fleets of autonomous cars could travel bumper-to-bumper without fear of accidents, to tele-surgery centers that could allow surgeons to operate on patients regardless of geography, to supply chains that would be so efficient they can eliminate mountains of wasted food while keeping billions of tons of CO2 from entering the atmosphere. These are a few areas of our lives where connected devices could one day have a positive impact." T-Mobile, "Forget 'Smart' Vs. 'Dumb' Devices: The Future Of IoT Hinges On Connected Insight," *Forbes*, July 9, 2020, https://www.forbes.com/sites/tmobile/2020/07/09/forget-smart-vs-dumb-devices-the-future-of-iot-hinges-on-connected-insight/.
[564] Zuboff, 226.

any skepticism of the emerging advances and developments in the digital realm are automatically perceived as regressive, obsolete, and naive. However, "inevitabilism precludes choice and voluntary participation. It leaves no room for human will as the author of the future."[565]

Notwithstanding technological determinism, if we assume that (computer) code can also be law, that is, that algorithms shape and drive human behavior, we also conclude that trade secrets, which protect these very algorithms, are currently making law and determining social habits. In that case, we need to achieve a higher degree of transparency in order to balance trade secrets with social norms.

> If "code is law," as Larry Lessig famously declared, it's important to understand what the new lawmakers are trying to do. We need to understand what the programmers at Google and Facebook believe in. We need to understand the economic and social forces that are driving personalization, some of which are inevitable and some of which are not. And we need to understand what all this means for our politics, our culture, and our future.[566]

A conclusion that can be drawn from Shoshana Zuboff and Eli Pariser's reasoning, as well as the exploratory analysis throughout this chapter, is that the relativization of trade secrets has not been completely explored as a possible means to attaining adequate explanations of algorithmic behavior when warranted. That is to say that the legal resources that protect trade secrets of proprietary algorithms leave little to no room for judicial challenges. In order to make progress in this matter, it is imperative that we question the **alleged inscrutability** of this category of intangible asset. Taylor R. Moore supports this conclusion.

> In contrast to copyright and patent law, trade secret law has expansive subject matter breadth, minimal requirements, no formal application process before acquisition, and encourages creators not to disclose information. While intellectual property law is intended to optimize social welfare by guarding against both under- and over-protection of information, this failing in trade secret law can ironically allow IP protection to undermine the social good in certain circumstances.[567]

Discussions around trade secrets and their possible regulation and limitations are usually imbued with a sense of inevitability, the same sense of inevitability that fuels the view

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[565] Zuboff, *Age of Surveillance Capitalism*, 227.
[566] Pariser, *Filter Bubble*, 19.
[567] Taylor R. Moore, *Trade Secrets and Algorithms as Barriers to Social Justice*, Center for Democracy & Technology, August 3, 2017, 1, https://cdt.org/wp-content/uploads/2017/08/2017-07-31-Trade-Secret-Algorithms-as-Barriers-to-Social-Justice.pdf.

of technological advancements as being unavoidable and also opposed by and unreachable to the hands of politics and history.[568] This creates an unlevel playing field in the discussions regarding fairer algorithmic business models, as if the sole purpose of regulation were to restrain government from ill-advisedly overreaching its powers and capacities, and not to enforce competition and privacy laws against private agents.[569]

Furthermore, there are growing theoretical frameworks pushing for datasets to be eligible for trade secret protection within the scope of the Trade Secrets Directive. By classifying them as commercial data, an organized form of data that increases the value of a business, companies are able to evade scrutiny further and avoid an expansion of data transparency and portability standards like that introduced by the GDPR.[570]

If trade secrets really were always essential to protecting core businesses, and if they really were impassible to scrutiny, there would be no point in envisioning a different future. The technological dystopia really would be inevitable. Some authors also classify this sense of inevitability as **techno-fundamentalism**.[571] If it serves the interest of several Silicon Valley firms and reinforces acceptance among other stakeholders, such as State actors, users, and academia, this techno-centric ideology ought to be at least demystified in order to allow for critical analysis.

An interesting exercise would be to envision the scenario in which there is no oversight, a world in which influential algorithms are totally shrouded in complete secrecy, confidentiality, and lack of scrutiny, all due to a preponderance of technology and technological determinism that protects algorithms from any form of inspection. Zuboff reminds us that "the image of technology as an autonomous force with unavoidable actions and consequences has been employed across the centuries to erase the fingerprints of power and absolve it of responsibility."[572]

Technology does not simply emerge from the ether. It is designed, created, disseminated, and operated, ultimately, by human beings, according to their objectives, usually through companies (which are legal creations). If trade secrets become impenetrable

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[568] Zuboff, *Age of Surveillance Capitalism*, 222.
[569] "An insensitivity to private intrusions on human freedom is a major blind spot for contemporary libertarianism, which is rightly concerned with government overreach but bizarrely tolerant of mistreatment or abuse committed by so-called private actors." Wu, *Curse of Bigness*, 41.
[570] Francesco Banterle, "The Interface Between Data Protection and IP Law: The Case of Trade Secrets and the Database *Sui Generis* Right in Marketing Operations, and the Ownership of Raw Data in Big Data Analysis" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 417-418, https://doi.org/10.1007/978-3-662-57646-5.
[571] Vaidhyanathan, *Googlization of Everything*, 50.
[572] Zuboff, 225.

shields behind which these same human beings, objectives, and companies hide and cannot ever be subject to accountability, what does that say about law, politics, and the State?

If categories of intellectual property rights, such as patents and copyrights, are subject to some form of limitations with the ultimate aim of creating optimal social benefits through innovation, why would an akin intangible asset, like trade secrets, enjoy complete protection by means of unquestionable confidentiality and secrecy? "Without any social balancing mechanism, analogous to fair use, trade secret law could be a vehicle for societal harms that are not easily discoverable."[573]

Broadly speaking, it is possible to assert that search engines should enjoy some sort of discretionary power to adjust their results according to their commercial interests, but also should ensure the trustworthiness of these results to some degree to safeguard against manipulation that can create social harm, such as in the case of SEO efforts, for instance. Moreover, with such discretion, in addition to "the very complexity of algorithms, the possibility of voluntary or non-voluntary bias in the source code, its increasing opaqueness as artificial intelligence develops, and the impossibility of access to data," an environment in which at least some means of questioning the operations of digital platforms and holding them to account is possible should be fostered.[574]

When users cannot observe the parameters of digital platforms' decisions, there has to be some way to mediate disputes. Otherwise, it is safe to assume that secrecy and supposed inscrutability will cast a shadow of doubt over the existence of effective competition in these markets. As Jay M. Strader asserts, "acknowledging the costs, society still should not permit the ingenuity of a business model and the lack of transparency concerning how search engines function to insulate exclusionary conduct from antitrust scrutiny."[575]

Secrecy is already subject to limitation in the course of antitrust investigations. Since 2019, the European Commission has adopted a communication policy that provides practical guidance to national courts when selecting effective protective measures for the disclosure of secrets during the course of antitrust damages proceedings.[576] This guidance is non-binding and non-exclusive, and it serves to assist national courts in selecting the most effective measure to protect confidentiality when deciding on disclosure requests in the context of

[573] Moore, *Trade Secrets and Algorithms*, 8-9.
[574] Marty, "La protection des algorithmes," 235.
[575] Strader, "Google, Monopolization," 593. See also: Rusche, "Data Economy and Antitrust Regulation," 119.
[576] Communication from the Commission Communication on the Protection of Confidential Information by National Courts in Proceedings for the Private Enforcement of EU Competition Law 2020/C 242/01, 2020 O.J. (C 242), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2020.242.01.0001.01.ENG&toc=OJ:C:2020:242:TOC.

damages actions. For example, it suggests actions such as the redaction of documents, the establishment of confidentiality rings, the use of external advisors, the appointment of third-party experts, and the limitation of access to hearings (which tend to be public under the principles of open justice).[577]

Yet, it would be utterly inadvisable to ask all companies with algorithm-based business models to disclose their source codes whenever questions regarding their functioning arise. This could cause irreparable damage not only to the companies, but to innovation in entire business sectors. Therefore, an intermediary solution to this conundrum regarding the accountability of a company whose operations depend on confidential algorithms may be an "assessment of the affirmative steps taken to adjust its software and mitigate bias. This could include evidence that a company scrutinizes its algorithm through audits, internal ethical review board/committee, or through some other method."[578] It may also be required that, based on casuistry, courts determine when and where equitability may be more at risk, and as a result demand greater scrutiny from specialists.[579] In this type of situation, in the case of litigation, the burden of proof is alleviated for the party who does not have access to the information. With the aim to strike a balance between the legitimate need for secrecy and the need for scrutiny, this should be taken into consideration to limit the protection given to trade secrets.

As a matter of fact, we can argue that a relevant portion of the success of these technological giants, which either detain a large portion of attention in relevant markets or are able to leverage their power in the marketplaces they create, is due to the informational asymmetries they cause and perpetuate.[580] If their economic achievement and maintenance of power stemmed exclusively from genuine productivity and did not depend on the

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[577] Konstantina Strouvali and Efstathia Pantopoulou, "Balancing Disclosure and the Protection of Confidential Information in Private Enforcement Proceedings: The Commission's Communication to National Courts," *Journal of European Competition Law & Practice* 12, no. 5 (May 2021): 393–398, https://academic.oup.com/jeclap/article-abstract/12/5/393/6174325.

[578] Moore, *Trade Secrets and Algorithms*, 12. See also: Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679" (WP251rev.01, 3 October, 2017), at 32, https://ec.europa.eu/newsroom/article29/item-detail.cfm?item_id=612053; Heleen L. Janssen, "An Approach for a Fundamental Rights Impact Assessment to Automated Decision-Making," *International Data Privacy Law* 10, no.1 (February 1, 2020): 105, https://doi.org/10.1093/idpl/ipz028; Christoph Busch, "Implementing Personalized Law: Personalized Disclosures in Consumer Law and Data Privacy Law," *The University of Chicago Law Review* 86, no. 2 (March 2019): 328-329, https://www.jstor.org/stable/10.2307/26590557; Moritz Büchi et al., "The Chilling Effects of Algorithmic Profiling: Mapping the Issues," *Computer Law & Security Review* 36 (April 2020): 3, https://doi.org/10.1016/j.clsr.2019.105367; Margot E. Kaminski, "The Right to Explanation, Explained," *Berkeley Technology Law Journal* 34, no. 1 (May 2019): 205-206, https://doi.org/10.15779/Z38TD9N83H.

[579] Moore, 13.

[580] Pasquale, *Black Box Society*, 187. See also: Llanos, "Close Look on Privacy Protection," 232; Kemp, "Concealed Data Practices," 662-663; Economides and Lianos, "Antitrust and Restrictions," 7.

informational advantages they cultivate, there would probably be less of a public demand for more transparency.

According to Frank Pasquale, "black boxes are a signal that information imbalances have gone too far. We have come to rely on the titans of reputation, search, and finance to help us make sense of the world; it is time for policymakers to help us make sense of the sense makers."[581] When dealing with trade secrets in a scenario where innovation is expected, the current situation is a classic example of information asymmetry. As long as the efficiency of a product or service, such as a search engine, relies on disproportionate informational advantages between players, innovation will be constrained.

This leads us to another question: would a right to explanation, as introduced by Recital 71 of the GDPR, supported by the competition arguments laid out throughout this chapter, mitigate possible injustices and promote a more balanced approach to regulating algorithms? Recital 71 provides an interpretive guide for the GDPR but, as we know, no obligation can derive directly from it since its contents are not operational (legislative) provisions. Thus, at the same time ambiguous or insufficiently explained sections of the GDPR can be interpreted in light of Recital 71, its explanatory function can be systematically combined and interpreted with different bodies of EU law. In summary, Recital 71 is not the source of a right to explanation, but rather an important declaration as to its existence in the field of data protection.

5 The Antitrust Offensive against Google in the European Union

In November 2010, the European Commission opened an antitrust investigation into Google's practices on the grounds that the company was allegedly abusing its dominant position in the market of online search, which would constitute a violation of article 102 of the TFEU.

> Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States. Such abuse may, in particular, consist in: (a) directly or indirectly imposing unfair purchase or

[581] Pasquale, *Black Box Society,* 17.

> selling prices or other unfair trading conditions; (b) limiting production, markets or technical development to the prejudice of consumers; (c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage; (d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.[582]

In accordance with this non-exhaustive list of anti-competitive and unilateral abuse of market dominance, the European Commission suspected Google's practices were harming the internal market and damaging innovation in different ways.[583]

This initial investigation was later merged with case n. AT 39740, the Google Shopping case,[584] which will be analyzed in more detail further on. The 2010 investigation gave rise to and substantiated a series of inquiries of online search-related abusive practices by Google, most notably, in three paramount cases: Google Shopping, Google Android, and Google AdSense. The European Commission gradually analyzed such practices and continues to do so in an effort to determine the company's illegal conduct better. Billions of euros in fines have been charged and subsequent appeals to the Court of Justice of the European Union have followed.

There have been allegations that the ranking of non-paid results was purposefully lowered when the company provided alternative competing services, such as price comparison and other vertical search applications. Additionally, the European Commission investigated if preferential placement of Google's own vertical search applications was provided on the results page, and if Google forced anticompetitive practices on its advertising partners by imposing exclusivity clauses and hampering the portability of campaign data to other platforms (Ciao/Google case).[585] While the proceedings of this case developed, the European Commission also initiated an investigation to examine the Google Search advertising program, AdSense.

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[582] Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012.
[583] According to Recital 6 of Regulation: "Online intermediation services and online search engines, as well as the transactions facilitated by those services, have an intrinsic cross-border potential and are of particular importance for the proper functioning of the Union's internal market in today's economy. The potentially unfair and harmful commercial practices of certain providers of those services, and the lack of effective redress mechanisms, hamper the full realisation of that potential and negatively affect the proper functioning of the internal market." Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[584] Case AT.39740, Google Search (Shopping), 2017 E.C.
[585] European Commission, "Antitrust: Commission Probes Allegations of Antitrust Violations by Google," press release, November 30, 2012, https://ec.europa.eu/commission/presscorner/detail/en/IP_10_1624.

5.1 The Google Shopping Case

The initial investigation regarding Google Search's mechanisms and its shopping comparison feature has raised several concerns regarding Google's practices. Google holds a dominant position in the online search business (primary market), even though this might not be the case for its vertical search business (connected secondary market). By exercising its power over its primary market, "Google has become a bottleneck for the flow of information on the internet, and [. . .] it has exploited this power to disproportionately direct users to Google's own content."[586] The same business model reasoning can be found in its exporting of this strategy to its operating system (Android) and its advertising intermediation tools (AdSense).

The European Union, specifically the European Commission, seems to understand this issue in the same manner. Since the historical case against Microsoft, the ability to evaluate these platforms in order to avoid significant damage to innovation by big players has been at the top of the agenda of the institution. It is important to remember that in the Microsoft case, the Windows operating system held a dominant prevalence over the market and Microsoft's secondary products had privileged access to the source code of its operating system.[587] This was not the case with competitors that wanted their applications to run on the Windows operating system, through interoperability mechanisms. If they were not allowed to be installed, integrated, and run on Windows, there was an effective chilling effect (deterrence) on innovations that could possibly compete with Internet Explorer, Microsoft Word, Windows Media Player, etc. This was because there was no technical interoperability between these systems due to the actions of Microsoft. It is important to remember that the integrity of its internal markets is a central value of the European Union[588] and has been fostered in increasingly sophisticated ways since 2009 and the Microsoft case, especially by promoting innovation by protecting competition.[589]

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[586] Joshua G. Hazan, "Stop Being Evil: A Proposal for Unbiased Google Search," *Michigan Law Review* 111, no. 5 (March 2013): 792, https://repository.law.umich.edu/mlr/vol111/iss5/5.
[587] Case T-201/04, Microsoft Corp. v. Commission of the European Communities, 2007 E.C.R. §§ 1334, 1339.
[588] Leurquin, "Proteção da inovação," 27.
[589] TFEU, Article 26: "1. The Union shall adopt measures with the aim of establishing or ensuring the functioning of the internal market, in accordance with the relevant provisions of the Treaties. 2. The internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services, and capital is ensured in accordance with the provisions of the Treaties. 3. The Council, on a proposal from the Commission, shall determine the guidelines and conditions necessary to ensure balanced progress in all the sectors concerned." Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012.

> Similar to the Microsoft case where Microsoft was alleged to have increased its dominance in the operating systems market by tying its weaker product to its stronger product, Google uses its dominance in horizontal search to push its own vertical search products by hard coding its vertical search products to the top of its horizontal search pages. Similar to the Microsoft case, where preinstalling the browser took consumer choice away, Google takes choice away by hard coding its vertical search products to the top of the horizontal search pages and representing these as the most relevant content. Moreover, just as Microsoft used its operating system to harm Netscape and help Microsoft's Internet Explorer, Google uses its horizontal search engine to harm Yelp and help Google's Google Plus.[590]

Google's actions can have a chilling effect on innovation and competition. Google has a well-established and successful business, which is its search engine. In this relevant market, under several jurisdictions, Google has a dominant market position.[591] Furthermore, Search is a broad tool that also encompasses vertical search mechanisms, that is, specialized ranking and searching tools, like image search, flights, maps, videos, etc.

> Google's business model has changed significantly. The company now features a wide variety of proprietary content both developed internally and acquired elsewhere, including Google Finance, Google Maps, Google News, Google Travel, Google Flight Search, Google Places, Google Plus, Google Product Search, YouTube, and Zagat. These services perform specialized functions not interchangeable with Google's core search function and therefore exist in separate product markets.[592]

The main search engine is its driving force, the powerhouse by which it can open doors to other vertical search applications that usually receive preferential treatment when being ranked at a results page. Even though Google Flights may not be the best and most efficient price comparison tool for airfares in this particular market, where Kayak may be the showrunner, for example, it is the one that Google chooses to display prominently in a query for flights on its search engine, where it is definitely a leader, and "visual prominence is a creative form of coercion that effectively results in a tie between horizontal and vertical search."[593]

The **tying** of a secondary proprietary product or service being offered in a market where it has a dominant position, even though that secondary service is not that competitive, can have a detrimental effect on Google's competitors since they are not able to fairly compete based on the quality of their products or services.[594] As "Google possesses a

[590] Mays, "Consequences of Search Bias," 751.
[591] Case AT.39740, Google Search (Shopping), 2017 E.C. § 271.
[592] Hazan, "Stop Being Evil," 804.
[593] Iacobucci and Ducci, "Google Search Case in Europe," 25.
[594] "In our view Google's strategy is a form of tying, although an unconventional one. Definitions of tying generally include the practice of not only requiring buyers of the tying good to purchase the tied good, but also of inducing buyers to purchase the tied good (Iacobucci 2014; Geradin and Petit 2006). [. . .] the kind of

dominant position in the market for core internet search and uses its power to direct consumers to Google's other proprietary services,"[595] this superior exposure is a tremendous competitive advantage that can hardly be undermined or even matched.[596]

> One cannot understand Google's incentives to make changes in its policies regarding the provision of organic search results without also looking for the effects of such changes outside the narrow scope of organic search as a standalone business. Therefore, it would be analytically incorrect to define a relevant market for the purposes of antitrust analysis that includes only organic search. Instead, any antitrust analysis regarding Google's activities with respect to the provision of organic search results must be performed on a broader terrain that includes at least Google's broader search-advertising business as well as any other Google-affiliated businesses that rely significantly on their listing in Google's organic search results.[597]

Of course, one may say that Google's audience is not captive, and that competing products are just one click away.[598] Nonetheless, not all users have the same conception of what is relevant on a search results page. More often than not, it is precisely the results page that informs the user of the relevance of certain results, not the other way around. In fact, "most users likely assume that the first few results for a given query are the most relevant

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psychological inducement to click on Google's vertical search services through visual prominence may be characterized as tying vertical search to general search. In this context, visual prominence becomes the means by which Google induces selection of its tied good because discounts are not available, given the zero price of search (negative prices lead to selection problems, inviting searchers only in it for the negative price, not the informational value of the search)." Iacobucci and Ducci, "Google Search Case in Europe," 23. See also: Case AT.39740, Google Search (Shopping), 2017 E.C. § 600.

[595] Hazan, "Stop Being Evil," 801-802.

[596] "Google would have no incentive to tie relatively competitive vertical search services to its monopolistic provision of general search. However, if Google has market power in general search, and specialized and general search are used in fixed proportions, then tying reduces competition in vertical search and it will clearly be within the monopolist's power to raise the price of tied goods above competitive levels: tying insulates the monopolist from competition in the tied good." Iacobucci and Ducci, 32. See also: Camilla A. Hrdy and Mark A. Lemley, "Abandoning Trade Secrets," *Stanford Law Review* 73, no. 1 (January 2021): 25-26, https://review.law.stanford.edu/wp-content/uploads/sites/3/2021/01/Hrdy-Lemley-73-Stan.-L.-Rev.-1.pdf. See also: Case AT.39740, Google Search (Shopping), 2017 E.C. § 291.

[597] Ratliff and Rubinfeld, "Is There a Market," 537.

[598] Hazan, "Stop Being Evil," 813. This opinion is also corroborated by many authors who see market dominance online as less prone to anti-competitive behavior due to easy switching costs (substitutability of the product search and comparison function). According to this position, the Google Shopping decision by the European Commission is inherently flawed: "The bottom line is that a search service draws more users by being more attractive, and more innovative, than its competitors. There are other search engines on the market, such as Bing, Yahoo! or DuckDuckGo. Just as Google overtook AltaVista in the past, another search engine could overtake Google in the future. Because there are alternatives – both in the form of horizontal and vertical search engines – Google cannot promote its advertisers to the detriment of user experience or it will lose its advertising revenue and market share. As demonstrated above, contrary to the Commission's suggestion, Google is subject to competitive constraints and does not have the ability to behave independently of its customers/users or competitors." Bergkamp, "European Commission's Google Shopping Decision," 533. Iacobucci and Ducci have got a different perspective on this matter: "There is no way to opt out of Google's additional services while using Google search, despite the fact that it would be technically feasible to allow users to choose their default vertical provider on the general search page. Although Google correctly argues that nothing forces users to click on links to its additional services, and searchers can click on other lower links or bypass Google by accessing websites directly, they are induced by prominent visualization not to do so." Iacobucci and Ducci, 29.

ones and do not bother to question this assumption unless the link they choose differs dramatically from the content that they expected."[599]

Google's practices have impeded the merit-based competition of search advertisements by how it has decided where they would be placed in comparison to its own adverts.[600] Based on an analysis of the period in which these practices occurred and the revenue Google acquired, the European Commission issued a Statement of Objections in April 2015, which, in summary, reached the following preliminary conclusions:

> Google systematically **positions and prominently displays** its comparison shopping service in its general search results pages, **irrespective of its merits**. This conduct started in 2008. / Google does not apply to its own comparison shopping service the **system of penalties**, which it applies to other comparison shopping services on the basis of defined parameters, and which can lead to the lowering of the rank in which they appear in Google's general search results pages. / Froogle, Google's first comparison shopping service, did not benefit from any favourable treatment, and performed poorly. / As a result of Google's **systematic favouring of its subsequent comparison shopping services** "Google Product Search" and "Google Shopping," both experienced **higher rates of growth**, to the detriment of rival comparison shopping services. / Google's conduct has a **negative impact on consumers and innovation**. It means that users do not necessarily see the most relevant comparison shopping results in response to their queries, and that incentives to innovate from rivals are lowered as they know that however good their product, they will not benefit from the same prominence as Google's product.[601]

This interpretation of Google's businesses not only opened leeway for affected competitors to claim damages in civil actions before the courts of member states, but it also highlighted a *modus operandi* of Google with regard to its search engine algorithm, which was replicated in other parallel applications. Thus, the analysis of the following cases will reveal the underlying relationship between Google's practices throughout its businesses and its competitors.

[599] Hazan,"Stop Being Evil," 794.
[600] Case AT.39740, Google Search (Shopping), 2017 E.C. § 344.
[601] European Commission, "Antitrust: Commission Sends Statement of Objections to Google on Comparison Shopping Service," memo, April 15, 2015, https://ec.europa.eu/commission/presscorner/detail/en/MEMO_15_4781 (my boldface). See also: Case AT.39740, Google Search (Shopping), 2017 E.C. §§ 268, 593.

5.2 The Google Android Case

In July 2018, the European Commission fined Google 4.34 billion euros for abusing its dominant position in the search engine market related to mobile devices that use Android's operating system.[602] According to Margrethe Vestager, Google's practices have deprived its competitors of the possibility to innovate and compete on their own merits.[603] There were concerns regarding anti-competitive practices in several activities of Google, which holds dominant positions in the market for generic internet search services, the market for operating smartphone systems under license, and the market for online application stores for these operating systems.

With regard to the market of search engines related to mobile phones, it has to be stressed that smartphone manufacturers can use the Android operating system, under license, on their devices. This market is characterized by high barriers to entry, mainly because of network effects, since the number of consumers using the operating system increases the number of application developers for this system, which in turn encourages more users to use the operating system.[604] One of its most relevant competitors would be iOS, Apple's operating system for the iPhone. Regarding the market of application stores, the Commission determined that more than 90% of applications downloaded on Android devices are downloaded via Google's Play Store. This market is also characterized by high barriers to entry, also because of network effects. According to the investigations:

> First, Google has required manufacturers to pre-install the Google search and browser apps on devices running on the Android mobile operating system. Manufacturers had to do this if they wanted to be able to sell devices with the Google app store. Second, Google paid manufacturers and network operators to make sure that **only** the Google search app was pre-installed on such devices. Third, Google has obstructed the development of competing mobile operating systems. These could have provided a platform for rival search engines to gain traffic.[605]

[602] Case AT.40099, Google Android, 2018 E.C.
[603] European Commission, "Statement by Commissioner Vestager on Commission Decision to Fine Google €4.34 Billion for Illegal Practices Regarding Android Mobile Devices to Strengthen Dominance of Google's Search Engine," press release, July 18, 2018, https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_18_4584.
[604] Llanos, "Close Look on Privacy Protection," 242. See also: Srnicek, *Platform Capitalism*, 45-46.
[605] European Commission, "Antitrust: Commission Sends Statement of Objections to Google on Comparison Shopping Service," memo, April 15, 2015 (my boldface).

The European Commission deemed these practices anti-competitive and punished Google for three types of restrictions: **bundling** Google's search and navigation apps, illegal payments subject to the **exclusive** pre-installation of Google Search, and **obstructing** the development and distribution of competing Android operating systems.[606]

Google's license includes Google Play Store, the Google Search app, and the Google Chrome browser. The Play Store is an indispensable application, as users expect to have it pre-installed and cannot legally download it. The Commission concluded that the bundling of the Google Search application and the Google Chrome browser within Android mobile devices characterized anti-competitive behavior. The purpose of imposing the pre-installation of these two applications was to artificially drive the use of these search and navigation applications. In addition, the company had stipulated the concession of licenses for Google products on the exclusion of other (competitors') pre-installed applications, thus reducing the possibility of other applications entering this specific market.

According to the Commission, Google paid some of the biggest Android device manufacturers, as well as mobile network operators, to exclusively pre-install Google Search. This practice has harmed the competition from the outset, as it reduced the incentives to pre-install competing search applications. Google's strategy had prevented technical development in the market, and, in addition, these abuses precluded other search engines from collecting data from smartphones, which artificially consolidated and strengthened Google's dominant market position. Thus, the European Commission reaffirmed the principle of interoperability between operating systems and applications by incorporating the protection of innovation into its approach to regulating the holder of a dominant market position.

The decision also required Google "to bring its illegal conduct to an end within 90 days, in an effective manner" and to "stop and to not re-engage in the three types of restrictions" again.[607] In other words, the European Commission required Google to halt

[606] Search bias in the Google Search case serves a purpose similar to that of the pre-installation of Google's search app and browser in the Android case: in the Android case, pre-installation achieves tying by exploiting a status quo bias. Buyers may not be required to rely on Android, but are likely to do so when it comes pre-installed. Iacobucci and Ducci, "Google Search Case in Europe," 29.

[607] European Commission, "Statement by Commissioner Vestager on Commission Decision to Fine Google €4.34 Billion for Illegal Practices Regarding Android Mobile Devices to Strengthen Dominance of Google's Search Engine," press release, July 18, 2018.

controlling which search and browser apps manufacturers can pre-install on Android devices, or which Android operating system they can operate.

Google claimed that the Commission had failed to conduct an analysis of the actual competitive effects of tying the Google Search app to the Play Store[608] and claimed there were not enough indirect network effects to characterize abuse of a dominant position, evoking the findings in the Microsoft case.[609]

The Commission dismissed Google's argument on the grounds that search services, as related to this case, do provide network effects for other applications of the same company, since "the greater the number of queries a general search service receives, the quicker it is able to detect a change in the pattern of user behavior and update and improve the relevance of its search results and related search advertising."[610] The decision ultimately concluded that Google's conduct "helps to maintain and strengthen its dominant position in each national market for general search services, increases barriers to entry, deters innovation and tends to harm, directly or indirectly, consumers,"[611] a pattern of behavior also identified and analyzed in other cases related to the company's search business.

5.3 The Google AdSense Case

With regard to the AdSense case, essentially, there were reports that the company was abusing its dominant position by restricting the search advertisement options of third-party websites to Google's services, stifling competition.[612] The contracts for search advertising intermediation were available for competition authorities to scrutinize and some of its clauses were deemed abusive.[613]

The market of search advertising intermediation is composed of a search tool on the website of retailers, telecom operators, and newspapers, among others. By entering a query, users are exposed not only to non-paid results, but also search ads intermediated by Google

[608] Case AT.40099, Google Android, 2018 E.C. § 852.
[609] Case T-201/04, Microsoft Corp. v. Commission of the European Communities, 2007 E.C.R.
[610] Case AT.40099, Google Android, 2018 E.C. § 855.
[611] Case AT.40099, Google Android, 2018 E.C. §§ 857, 858.
[612] Case AT.40411, Google Search (AdSense), 2019 E.C.
[613] For an in-depth analysis of Google's AdSense and other advertising strategies, see: Damien Geradin and Dimitrios Katsifis, "'Trust Me, I'm Fair': Analysing Google's Latest Practices in Ad Tech from the Perspective of EU Competition Law," *European Competition Journal* 16, no. 1 (January 13, 2020): 15-16, https://doi.org/10.1080/17441056.2019.1706413.

or by its competitors, which receive a commission per click. This practice reportedly took place over a period of ten years.

Similar to the search engine market, Google held an 80% market share in European search advertising intermediation at the time.[614] For the third-party website owners to which Google provided these services, there were concerns regarding contractual exclusivity clauses, premium placement of a minimum number of Google search ads, and the right to authorize (or not) competing ads.

Google claimed that the Commission failed to prove the existence of an actual exclusion strategy adopted by the company towards its competitors, mainly asserting that it simply provided the most efficient ad service available. It also asserted that Microsoft and Yahoo's advertising services were unable to compete due to their deficient technologies and the inferior quality of their products compared to Google's, not because there were anti-competitive clauses in its advertising contracts.[615]

The Commission dismissed Google's claims, determining that its analysis of abuse of a dominant position was based on the actual effects of Google's conduct, not its subjective intent regarding an exclusion strategy.[616] Some of the contractual clauses required third-party websites to seek Google's approval before making any change to the display of competing search ads, which "prevented access by competing providers of online search advertising intermediation services to a significant part of the EEA-wide market for online search advertising intermediation."[617]

These practices could potentially harm innovation and reduce choice for businesses contracting advertising online, due to the fact that competitors would hardly have a choice how to compete, including with new models of business, and prices would mainly be set by

[614] About the determinants of abuse of a dominant market position, the decision on the Google Shopping case renders that "one important factor is the existence of very large market shares, which are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position. An undertaking which holds a very large market share for some time, without smaller competitors being able to meet rapidly the demand from those who would like to break away from that undertaking, is by virtue of that share in a position of strength which makes it an unavoidable trading partner and which, already because of this, secures for it, at the very least during relatively long periods, that freedom of action which is the special feature of a dominant position. That is the case where a company has a market share of 50% or above. Likewise, a share of between 70% and 80% is, in itself, a clear indication of the existence of a dominant position in a relevant market." Case AT.39740, Google Search (Shopping), 2017 E.C. § 266. See also: Muriel Chagny, "Abus de position dominante: Le Tribunal de commerce de Paris sanctionne de nouveau un abus de position dominante commis par l'éditeur d'un moteur de recherche et exploitant d'un service de publicité en ligne (*Google*)," The New US Antitrust Administration, *Concurrences* no. 1, février 2021, https://www.concurrences.com/en/review/issues/no-1-2021/alerts/alertes-pratiques-unilaterales-france-abus-de-position-dominante-abus-de.

[615] Case AT.40411, Google Search (AdSense), 2019 E.C. § 545.

[616] Case AT.40411, Google Search (AdSense), 2019 E.C. § 551.

[617] Case AT.40411, Google Search (AdSense), 2019 E.C. § 584.

Google. The dominance of the market does not inherently pose a competition problem under EU law. However, an abuse of this position, by means of such practices, for example, may maximize traffic to its own websites and limit the ability of competitors, like Yahoo and Microsoft, to place search ads on third party websites.

If we contextualize these intermediation strategies for online search and advertising, it is easy to understand the fallacy of neutrality among Google's business to business relationships. Because it sets prices according to an auction-based system in which the highest bidder is matched with queries in the sponsored links area at the top of the result page, even when their ads may not necessarily be the most appropriate for the search, Google's business is not run according to mathematics and competitiveness per se.[618]

Even though Google removed these illegal restrictions from its contracts in 2016, when the European Commission published their Statement of Objections, in March 2019, the EU regulator issued a fine to Google of € 1.49 billion for the way it abused its dominant position in search advertising intermediation.[619] The company was found guilty of imposing exclusive supply obligations, stipulating where the most profitable search results ought to be displayed, and reserving these spaces for its own search adverts.[620]

5.4 Recent Developments in the European Union's Stance against Google

Broadly speaking, it is fair to assert that "Google has created a business model that earns profits predominantly from when consumers select paid-ads instead of organic results."[621] This business model, although it still produces a lot of consumer welfare, is also capable of

[618] Galloway, *The Four*, 132. See also: Geradin and Katsifis, "'Trust Me, I'm Fair'," 23-24.
[619] "As Google's concessions to European Union authorities in both privacy and antitrust cases show, it is possible to create a more level online playing field. But there must first be a clear recognition of the need, and then the will to act on it." Pasquale, *Black Box Society,* 197. Since then, similar cases involving Google's advertising business model and its supposed abuse of dominant position have been brought to national courts in the European Union. About that, see: Chagny, "Abus de position dominante."
[620] "These restrictive clauses lead to a vicious circle. Google's rivals were unable to grow and compete. As a result, owners of websites had limited options for selling advertising space on these websites and were forced to rely solely on Google. And, as a result of that, Google benefited from network effects and became even stronger. There was no reason for Google to include these restrictive clauses in its contracts, except to keep its rivals out of the market. This is why we've concluded that, between 2006 and 2016, Google's behaviour was illegal under EU antitrust rules. It prevented its rivals from having the chance to innovate and compete on the merits. Advertisers and website owners had less choice and likely faced higher prices that would be passed on to consumers." European Commission, "Statement by Commissioner Vestager on Commission Decision to Fine Google € 1.49 Billion for Abusive Practices in Online Advertising," statement, March 20, 2019, https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_19_1774. See also: Srnicek, *Platform Capitalism*, 45-46.
[621] Strader, "Google, Monopolization," 562.

undermining users and providers' interests, especially in the event of search result manipulation. As European[622] and American[623] competition authorities have discovered, manipulated rankings may cause price discrimination, an artificial increase of advertising costs, limitation of users' access to information regarding certain providers and, consequently, a reduction in present and future market variety.[624]

Therefore, as efficient as Google Search may be as an online tool for comparison and access to a relevant listing of providers, its monetizing strategies have rendered its business model potentially harmful to consumers in the long run. And Google's algorithm is at the core of this conundrum, because an explanation to its decision-making process (or the lack thereof) might determine a need for further regulation, whether in the form of intervention, scrutiny, or remedies provided to competitors.[625] "While the service that Google provides inherently facilitates economic activity, it has the ability and incentive to obstruct that activity and harm consumers relative to a search engine that earned profits differently."[626]

According to Tim Wu, competition law serves a larger purpose than just mitigating antitrust conduct and breaking up monopolies. The author believes that, essentially, this field of law operates as "a necessary part of a functioning democracy, as an ultimate check on private power."[627] Wu's views are predominantly concerned with the policies of the United States, which are the scholar's object of study, but he recognizes their influence over different jurisdictions, just as he perceives the efforts of initiatives in other regions to restore a check on power, such as in the European Union.

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[622] Case AT.39740, Google Search (Shopping), 2017 E.C.

[623] The Department of Justice of the United States, backed by several state attorneys general has recently demonstrated a swift change in its approach compared to previous years, during which American legislative and executive authorities had been nothing but lenient towards technological companies such as Google and Facebook, especially with regards to their supposedly anticompetitive behavior. This may suggest more changes in the near future, not only to regulation policies, but also to the company's policies towards new acquisitions. For more details on the issue, see: Cecilia Kang, David McCabe, and Daisuke Wakabayashi, "U.S. Accuses Google of Illegally Protecting Monopoly," *The New York Times*, October 20, 2020, Technology, https://www.nytimes.com/2020/10/20/technology/google-antitrust.html. See also: Joanna Mazur, "Right to Access Information as a Collective-Based Approach to the GDPR's Right to Explanation in European Law," *Erasmus Law Review* 11, no. 3 (December 2018): 179-180, https://ssrn.com/abstract=3356770; Frederik J. Zuiderveen Borgesius, "Strengthening Legal Protection against Discrimination by Algorithms and Artificial Intelligence," *The International Journal of Human Rights* 24, no. 10 (March 25, 2020): 1574, https://doi.org/10.1080/13642987.2020.1743976.

[624] Strader, "Google, Monopolization," 567.

[625] "The unique complexity of digital advertising and its constant evolution make it next to impossible to design future-proof remedies that will address competition concerns once and for all." Geradin and Katsifis, "'Trust Me, I'm Fair'," 49.

[626] Strader, 570.

[627] Wu, *Curse of Bigness*, 16.

> Europe now leads in the scrutiny of "big tech," including the case against Google's practices, and in smaller, less public matters, like policing how Apple deals with competitors who also depend on the iPhone platform. European antitrust is far from perfect, but its leadership and willingness to bring big cases when competition is clearly under threat should serve as a model for American enforcers and for the rest of the world.[628]

Regarding the United States, even though it is not the main jurisdiction on which this analysis focuses, its characteristics are important due to the fact that most business models for surveillance capitalism are not only engendered in the country, but also fostered and let loose by competition authorities there, such as the Department of Justice (DOJ) and the Federal Trade Commission (FTC). Surprisingly, at the cusp of 2020, and during Donald Trump's presidency, the DOJ started antitrust procedures against Google, followed by several other state attorneys general.[629]

Google's monopoly in the search engine market is an essential focus of such procedures, because of the excessive power that its algorithms exert over its commercial sphere. Alongside the spread of disinformation as an infamous side-effect of services provided by this and other platforms, the lack of antitrust enforcement also produces a particular harmful consequence to innovation: new entrepreneurial endeavors tend to reproduce the same business models that preceded them, either to be acquired by their predecessors or to fit within the predatory scenario of the technological advancements of Silicon Valley.[630] Therefore, such a biased system of market development lacks diversity and cultivates even more concentration of resources and power.

It is precisely the leveraging function against this sort of business pattern that has been partially lost over the last decade in the United States and in other jurisdictions, especially with regard to the tech industry. Law has, in many ways, yielded its power to the fallacies of technological inevitabilism, noticeably, by approaches that put immediate benefits to consumer welfare above all else. While we can discuss the cases against Google in the European Union in terms of competition issues, it is also possible to analyze the situation by

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[628] Wu, *Curse of Bigness*, 131.

[629] James D. Walsh. "A Small Target in a Big Case: Scott Galloway on the Antitrust Case against Google," *New York Intelligencer*, November 2, 2020, Just Asking Questions, https://nymag.com/intelligencer/2020/11/antitrust-case-against-google.html. See also: Lesley Hannah and Stella Gartagani, "The US DoJ Files a Complaint against a Search Engine for Its Unlawful Monopolisation of the Search and Search Advertising Markets *(Google)*," *e-Competitions October 2020*, October 20, 2020, https://www.concurrences.com/fr/bulletin/news-issues/october-2020/the-us-doj-files-a-complaint-against-a-search-engine-for-its-unlawful.

[630] Facebook's acquisition of Instagram out of fear of the competition it represented for the social network is an infamous example of this dynamic. Instagram now reproduces Facebook's business model: monetization by means of profiled advertising and the cross-referencing personal information with Facebook's platform. See also: Khan, "Amazon's Antitrust Paradox," 722.

looking at how the company has reconfigured the market throughout its history. For decades, Google has been making strategic acquisitions of its possible competitors, free from objection, making for an even more concentrated market and consolidating its power over its various areas of expertise. There have been at least 214 acquisitions reported in total, YouTube and Waze being among the major ones.[631]

Since the digital economy usually reduces prices for consumers in comparison to more traditional business models, or even offers its services "for free," antitrust behavior in these circumstances is relativized.

> The most visible manifestations of the consolidation trend sit right in front of our faces: the centralization of the once open and competitive tech industries into just a handful of giants: Facebook, Amazon, Google, and Apple. The power that these companies wield seems to capture the sense of concern we have that the problems we face transcend the narrowly economic. Big tech is ubiquitous, seems to know too much about us, and seems to have too much power over what we see, hear, do, and even feel. It has reignited debates over who really rules, when the decisions of just a few people have great influence over everyone.[632]

As we have seen in previous sections of the present analysis, the problems of the digital economy are multifaceted and complex, particularly with respect to the multiple interests at stake when it comes to Google's main application: its search engine. There are no one-size-fits-all solutions to the problems of inscrutability, opaqueness, and biased algorithms. I believe that competition law plays an important, if not fundamental, role in the resolution of the issues surrounding Google nowadays. Furthermore, not only do Google's market power and market concentration hamper innovation and competition, they also enhance the political power and influence of tech industries over law-making bodies and regulatory institutions. Therefore, it is crucial to recognize that "if antitrust is not the solution, it, historically, has been part of the solution, meriting a new look at what it can do."[633]

The cases against Google Shopping, Google Android, and Google AdSense all aimed to understand, by means of a sectoral approach (analyzing bit by bit the company's business within its particular markets), how Google has been abusing its power over competitors from its dominant market position and stifling competition.[634] This is really important, since Google's main source of revenue is its advertisers, its true clients, not its

[631] Wu, *Curse of Bigness*, 124.
[632] Wu, 21. See also: Kemp, "Concealed Data Practices," 671-672; Rusche, "Data Economy and Antitrust Regulation," 114.
[633] Wu, 23. See also: Khan, "Amazon's Antitrust Paradox," 739.
[634] "It matters little whether Google's customers are truly captive in the same way Microsoft's users were, and it would be a mistake to focus on that aspect of the analogy. Instead, the key focus should be on Google's ability to lock *out* its competition, rather than lock *in* its users." Hazan, "Stop Being Evil," 815.

users.[635] This means it is dependent on advertisers for revenue and, consequently, on clicks and the performance of adverts.[636] Since Google has an ability to effectively drive traffic online from its results page to many other businesses and content providers online, there is a strong dependence both of Google on this source of revenue and of its advertisers with regard to Google Ads. Consequently, there is a lack of incentives to change its model of business: advertisers rely on Google to stream users from its results page to their websites, and Google's monetization relies heavily on advertisers paying to be on the results page.

With Google, there is also a problem of overall scale. The company has grown so much and in so many different markets, that "investors deem Google 'harder to catch than ever.'"[637] Its data stores, computing power, and across-the-board offer of services allow it to train its algorithms, with its own hardware, in its own cloud. Google's business constitutes an intense self-fueling cycle that produces great competitive advantages in several different markets.[638]

To leave these markets to their own devices is to declare the failure of competition regulation mechanisms. Intervening is imperative in order to allow space for newcomers to become the next Google, Amazon, Facebook, and Apple. According to Frank Pasquale, "there is no neutral ground here: the state either takes steps to protect the upstarts, or allows the giant platforms to swallow them."[639] In marketplaces controlled by one of the competitors itself, which is the case with Google in many of its facets, it is the one regulating competition. And there is no question as to what motivates the company's decision: the survival and dominance of their own products.

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[635] According to recent estimates, Google advertising revenue (across its platforms) constitutes over 83% of Alphabet's total revenue. Trefis Team, "Is Google Advertising Revenue 70%, 80%, Or 90% Of Alphabet's Total Revenue?" *Forbes*, December 24, 2019, https://www.forbes.com/sites/greatspeculations/2019/12/24/is-google-advertising-revenue-70-80-or-90-of-alphabets-total-revenue/.

[636] "Google's incredible share of advertising revenue clearly indicates its indispensability to online search advertisers and serves as a good proxy for its power over them." Hazan, "Stop Being Evil," 802.

[637] Zuboff, *Age of Surveillance Capitalism*, 188.

[638] "Combining personal data from multiple sources is made possible by a data ecosystem which is almost entirely invisible and unknowable for consumers. Data aggregators compile immense quantities of personal information about individual consumers, using data acquired from suppliers with whom the consumer has dealt as well as data acquired from other data brokers and aggregators with whom the consumer has never had any dealings. This personal information can be used to make inferences about consumers' intimate characteristics, and profile and sort consumers, particularly to compile lists of consumers for sale to other suppliers and data brokers." Kemp, "Concealed Data Practices," 648. Regarding this, consider also Guido Noto La Diega's view on the subject: "Google is the strongest actor of the behavioural advertising world because it can monitor the users across several devices and services. The system feeds itself. In other words, if most of the advertisers, publishers, etc. use Google's services for advertising, at the same time they are providing Google with further data." La Diega, "Data as Digital Assets," 479.

[639] Pasquale, *Black Box Society*, 69.

In addressing the importance of the European model, Tim Wu says that Europe has led in the scrutiny of large technology companies. So, while not a perfect model, EU's "willingness to open important legal cases when competition is clearly threatened should serve as a model for US law enforcement officials and the rest of the world."[640]

5.5 The Digital Single Market Strategy

The European Union seems to be taking a tougher regulatory stance in other areas of the digital realm. The Digital Single Market Strategy, which involves regulations, directives, amendments, strategies etc., aims to regulate digital marketing, e-commerce, and telecommunications in the EU, with a special emphasis on fairness and transparency for business users of online intermediation services.[641]

By means of Regulation 2019/1150, for example, which applies to online search engines, it is possible to investigate if "the competition between goods or services offered by a business user and goods or services offered or controlled by a provider of online intermediation services constitutes fair competition and whether providers of online intermediation services misuse privileged data in this regard."[642]

First of all, this legislation seeks to promote fairness and transparency for business users of online intermediation and online search engine services.[643] According to the Regulation's definitions,[644] these provisions would probably apply to Google Search as an online search engine (PageRank) and as an online intermediation services provider (vertical

[640] Also: "Europe now leads in the scrutiny of 'big tech,' including the case against Google's practices, and in smaller, less public matters, like policing how Apple deals with competitors who also depend on the iPhone platform. European antitrust is far from perfect, but its leadership and willingness to bring big cases when competition is clearly under threat should serve as a model for American enforcers and for the rest of the world." Wu, *Curse of Bigness*, 131.

[641] European Commission, "Digital Single Market Strategy," mid-term review, May 6, 2015, https://eur-lex.europa.eu/content/news/digital_market.html. The strategy was officially adopted on September 18, 2020.

[642] Article 18.d. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[643] Article 1.1. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[644] Article 2.3 and 2.5: "(3) 'provider of online intermediation services' means any natural or legal person which provides, or which offers to provide, online intermediation services to business users; [. . .] (5) 'online search engine' means a digital service that allows users to input queries in order to perform searches of, in principle, all websites, or all websites in a particular language, on the basis of a query on any subject in the form of a keyword, voice request, phrase or other input, and returns results in any format in which information related to the requested content can be found." Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

search applications such as Google Shopping and other price comparison tools). Not only does Regulation 2019/1150 include special provisions for online search engines, but it also shows the relevance of characterizing Google Search as a marketplace (see Section 1 of this Chapter), since it intermediates the ranking of its links to users' websites (businesses). The European Commission's Guidelines on ranking transparency pursuant to Regulation 2019/1150 seem to support this stance, especially when it comes to its transparency provisions: "The requirements of Article 5 apply to providers of online intermediation services and online search engines. If providers of online search engines are (vertically or horizontally) integrated, part of what they offer may be online intermediation services as well."[645]

The regulation also recognizes the importance of these business-to-business (B2B) relationships in order to favor consumers in the Union (users of the search platform seeking relevant information), increasing the choice of goods and services, allowing for competitive pricing, and building actual trust in the results provided.[646]

Even though it is not explicit in Regulation 2019/1150, it seems reasonable to assume that it was also intended to cover Amazon's services in addition to Google's online intermediation and online search services. Amazon's business model is not within the scope of this analysis, but some of the issues raised here concerning Google are also relevant to Amazon: it is both a marketplace for retailers and a product provider (it sells both products from its own warehouses and from third-party retailers). Additionally, its ranking and recommendation system lacks transparency and has been subject to complaints from retailers regarding demotion and unfair favoritism toward Amazon's own products.[647] Besides, it has raised concerns regarding cross-border market concentration.[648]

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[645] 2.1. Integrated services. Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation (EU) 2019/1150 of the European Parliament and of the Council, 2020 O.J. (C 424), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020XC1208%2801%29.

[646] Recitals 1 and 2. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[647] Alina Selyukh, "Amazon Faces Antitrust Charges From European Regulators," *National Public Radio*, November 10, 2020, Business, https://www.npr.org/2020/11/10/879643610/amazon-faces-antitrust-charges-from-european-regulators. See also: Aurélien Portuese and Anne Witt, "Algorithmic Governance and Article 102 TFEU," *Concurrences* no. 3 (September 2020): 5, https://www.concurrences.com/en/review/issues/no-3-2020/conferences/aurelien-portuese.

[648] In the United States, Amazon also owns distribution networks, warehouses, and cloud computing systems (Amazon Web Services – AWS), just to name a few. It is thus fair to assume that the practices regarding these services spark special interest from European competition authorities, especially if Amazon grows even more in terms of market share in member states of the European Union. It is also worth noting that Recital 13 of Regulation 2019/1150 defines online search engines as technology-neutral, "to also encompass voice requests."

It also specifically aims to provide more transparency in the ranking of business on the platforms of online intermediation services.

> Providers of online search engines shall set out the main parameters, which individually or collectively are most significant in determining ranking and the relative importance of those main parameters, by providing an easily and publicly available description, drafted in plain and intelligible language, on the online search engines of those providers. They shall keep that description up to date.[649]

Regulation 2019/1150 promotes predictability on platforms, determining that this allows business users to better understand the functioning of the ranking mechanism. It also, states that "main parameter should be understood to refer to any general criteria, processes, specific signals incorporated into algorithms or other adjustment or demotion mechanisms used in connection with the ranking."[650] These ranking parameters and the ideal level of detail set out by Article 5 are specified in great detail in the European Commission's Guidelines on ranking transparency pursuant to Regulation (EU) 2019/1150.

> 1.3.3. The right level of detail: The descriptions given by providers in accordance with Article 5 should provide **real added-value** to the users concerned. Articles 5(1) and (2) require that providers give information not only of the main parameters, but also the **reasons for the relative importance of those main parameters as opposed to other parameters**. In addition, pursuant to Article 5(5), the users should be enabled to obtain an "adequate understanding" of whether and if so, how and to what extent three particular factors are taken into account. This means that the description to be provided has to go beyond a simple enumeration of the main parameters, and provide at least a "second layer" of explanatory information. Providers could, for example, consider describing the company-internal "thought process" that was used for identifying the "main parameters," as a way to also derive the "reasons for their relative importance."[651]

To exemplify some of the main parameters that can be used to explain how an online intermediation service or online search engine functions, the European Commission Guidelines lists a wide range of possible criteria: personalization information, users' history, cross-platform presence, relationship with ancillary services, and user reviews, among

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This is particularly relevant in the case of Amazon and Google's personal voice assistants. Recital 13. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[649] Article 5. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[650] Recital 24. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[651] 1.3.3. The right level of detail. Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation (EU) 2019/1150 of the European Parliament and of the Council, 2020 (my boldface).

others.[652] These criteria and other proposals of transparency disclosures will be further explored in chapter 4, in relation to the actual practice of a right to explanation when using platforms such as Google Search.

Another interesting aspect related to the transparency of these services is addressed by Recital 27 of the Regulation, which assures that "providers of online intermediation services or of online search engines should not be required to disclose the detailed functioning of their ranking mechanisms, including algorithms."[653] This is supported by Article 5.6, which also envisions possible requests for algorithmic disclosures and expressly rejects it out of fear of "the enabling of deception of consumers or consumer harm through the manipulation of search results."[654]

Therefore, the regulation perceives complete transparency of search engine algorithms as a risk to consumers and competition, due to the fact that it might allow for Search Engine Optimization and overall distortions of the use and the functioning of the algorithm, in addition to difficulties in the comprehension of such parameters.[655]

However, this does not equate to a one-size-fits-all solution to the point that algorithms cannot be scrutinized at a deeper level of understanding than those default standards set out by Regulation 2019/1150. If an online search engine service is acting in a way that constitutes abuse of a dominant market position and engaging in anti-competitive behavior, as discussed with regard to Google in previous sections of this chapter, it is fair to assume that consumers are already being harmed and that the possibility of Search Engine Optimization and user confusion is not a priority for competition enforcement in this case.[656] Moreover, scrutiny of algorithmic ranking may also be subjected to confidential court disclosures in the course of legal proceedings, according to Directive 2016/943.[657]

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[652] 3.3. Specific considerations when identifying the main parameters. Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation (EU) 2019/1150 of the European Parliament and of the Council, 2020.

[653] Recital 27. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[654] Article 5.6. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.

[655] "[A]n excess of information can mean that, in effect, no meaningful information is provided to users. Providers should accordingly on the one hand identify and adequately explain the main ranking parameters, whilst on the other hand not overwhelm users with too lengthy or complicated descriptions, or descriptions of parameters other than the main ones. Not providing excessive details should also help avoid the risk of enabling the deception of consumers or consumer harm, as referred to in Article 5(6)." Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation (EU) 2019/1150 of the European Parliament and of the Council, 2020.

[656] Iacobucci and Ducci, "Google Search Case in Europe," 20-21.

[657] Article 9.1: "Member States shall ensure that the parties, their lawyers or other representatives, court officials, witnesses, experts and any other person participating in legal proceedings relating to the unlawful

This matter has also been tackled in a Google case heard by the CJEU, in which the lack of confidentiality of court proceedings could have potentially endangered the company's trade secrets.[658] In general, the party submitting a request for confidential treatment specifically identifies the particulars or passages to be excluded in court proceedings, stating the reasons why each of those particulars or passages is regarded as confidential. Google requested to maintain the confidentiality of certain information, alleging it was necessary to protect its trade secrets against third-party interveners.

The court examined each request and respective justification, granting some and not others, in order "to balance the legitimate interests of Google and BEUC as to whether or not it should be disclosed."[659] Some of the information Google wanted to be kept confidential in the proceedings was available in other public documents already presented to the court, which was highlighted in the decision as a reason not to grant secrecy in such instances.

For its part, outside the realm of court procedures, Regulation 2019/1150 appears to attempt to strike a balance between the interests of business users of online search engines and the proprietary and innovative nature of the search engines' ranking mechanisms (run by algorithms). Thus, this intermediary transparency standard aims to preserve trade secrets while also establishing minimum requirements of disclosure.

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acquisition, use or disclosure of a trade secret, or who has access to documents which form part of those legal proceedings, are not permitted to use or disclose any trade secret or alleged trade secret which the competent judicial authorities have, in response to a duly reasoned application by an interested party, identified as confidential and of which they have become aware as a result of such participation or access. In that regard, Member States may also allow competent judicial authorities to act on their own initiative." Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) against Their Unlawful Acquisition, Use and Disclosure (Text with EEA Relevance), 2016, O.J. (L 157), http://data.europa.eu/eli/dir/2016/943/oj/eng. See also: Hannah Bloch-Wehba, "Access to Algorithms," *Fordham Law Review* 88, no. 4 (March 2020): 1308, https://ir.lawnet.fordham.edu/flr/vol88/iss4/2/; Lisa Käde and Stephanie von Maltzan, "Towards a Demystification of the Black Box—Explainable AI and Legal Ramifications," *Journal of Internet Law* 23, no. 3 (September 2019): 10, https://cibleplus.ulb.ac.be/permalink/32ULDB_U_INST/1cfj0qe/cdi_proquest_reports_2297099124; Shreya Desai, "Shhh – It's a Secret: A Comparison of the United States Defend Trade Secrets Act and European Union Trade Secrets Directive," *Georgia Journal of International and Comparative Law* 46, no. 2 (2018): 481-514, https://digitalcommons.law.uga.edu/gjicl/vol46/iss2/7/; Davide Arcidiacono, "The Trade Secrets Directive in the International Legal Framework," *European Papers* 1, no. 3 (2016): 1073-1085, https://www.europeanpapers.eu/en/system/files/pdf_version/EP_EF_2016_I_038_Davide_Arcidiacono_00083.pdf; Rembert Niebel, Lorenzo de Martinis, and Birgit Clark, "The EU Trade Secrets Directive: All change for Trade Secret Protection in Europe?" *Journal of Intellectual Property Law & Practice* 13, no. 6 (June 2018): 445-457, https://academic.oup.com/jiplp/article-abstract/13/6/445/4939318.

[658] Case T−612/17, Google LLC formerly Google Inc. & Alphabet Inc. v. European Commission, 2017 E.C., Order of the President of the Ninth Chamber (Extended Composition) of the General Court (8 October 2019).

[659] Case T−612/17, Google LLC formerly Google Inc. & Alphabet Inc. v. European Commission, 2017 E.C., Order of the President of the Ninth Chamber (Extended Composition) of the General Court (8 October 2019) § 27.

Most noticeably, the Digital Single Market Strategy launched proposals for two significant regulations in this field: **The Digital Services Act (DSA)**[660] and **Digital Markets Act (DMA)**, in December 2020.[661] Their stated goals are to "create a safer digital space in which the fundamental rights of all users of digital services are protected" and "establish a level playing field to foster innovation, growth, and competitiveness, both in the European Single Market and globally."[662]

The current DSA proposal is focused on the fact that online intermediaries share responsibilities in ensuring predictability, safety, and protection of fundamental rights within the European Union's digital environment. Thus, many of the provisions it sets out focus on transparency, liability, and risk mitigation (against fundamental rights violations). It particularly applies to **recommender systems**, defined as

> a fully or partially automated system used by an online platform to suggest in its online interface specific information to recipients of the service, including as a result of a search initiated by the recipient or otherwise determining the relative order or prominence of information displayed,[663]

a definition which can be applied to Google's search engine.

Article 29 of the proposal is of the utmost relevance to our analysis, since it encompasses the reasoning behind automated decisions, the need for explanations comprehensible to users regarding such reasoning, and finally, the possibility to provide more autonomy to users through the individual personalization of these platforms.

> 1.Very large online platforms that use recommender systems shall set out in their terms and conditions, in a clear, accessible and easily comprehensible manner, the main parameters used in their recommender systems, as well as any options for the recipients of the service to modify or influence those main parameters that they may have made available, including at least one option which is not based on profiling, within the meaning of Article 4 (4) of Regulation (EU) 2016/679.

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[660] Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final, https://eur-lex.europa.eu/legal-content/en/TXT/?qid=1608117147218&uri=COM%3A2020%3A825%3AFIN.
[661] "The Commission's triad of proposals of Winter 2020, i.e., the proposed DGA, DMA and DSA, currently represent the hitherto most ambitious regulatory project in the field of data and digital services regulation worldwide." Matthias Leistner, "The Commission's Vision for Europe's Digital Future: Proposals for the Data Governance Act, the Digital Markets Act and the Digital Services Act—a Critical Primer," *Journal of Intellectual Property Law & Practice* 00, no. 0 (22 March 2021): 7, https://doi.org/10.1093/jiplp/jpab054.
[662] Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final.
[663] Article 2, (o). Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final.

> 2.Where several options are available pursuant to paragraph 1, very large online platforms shall provide an easily accessible functionality on their online interface allowing the recipient of the service to select and to modify at any time their preferred option for each of the recommender systems that determines the relative order of information presented to them.[664]

In the case that such a provision is put into place in a search engine tool such as Google's, the platform would have to implement explainability tools for its users, in addition to providing them with the choice to adhere or not to these criteria or personalization. Partially, this would be in accordance with a right to explanation, especially because of its transparency requirements.

The proposal for the Digital Services Act foresees the need for "very large platforms"[665] to execute audits in order to conduct "risk assessments and design their risk mitigation measures with the involvement of representatives of the recipients of the service, representatives of groups potentially impacted by their services, independent experts and civil society organisations."[666] The proposal mentions specific algorithmic audits which should ensure the confidentiality, security, and integrity of the information gathered, such as trade secrets.[667]

Even though the DSA is not a competition mechanism, it does provide transparency tools that might increase scrutiny of online platforms, especially larger platforms with recommender systems, such as Google search.

The **Digital Markets Act** focuses on *ex ante* rules to ensure contestable, interoperable, and fairer markets in the digital sector where gatekeepers are present.[668] It defines **gatekeepers** as providers of core platform services when they

[664] Article 29. Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final.
[665] According to the proposal, online platforms are those that provide their services to a number of average monthly active recipients of the service in the Union equal to or higher than 45 million.
[666] Recital 59. Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final.
[667] Recital 60. Proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final.
[668] There is some criticism, however, as to the creation of two legal regimes, one for *ex ante* regulation and another for *ex post* competition enforcement, which is an overlap of the two regimes in a sense. Zlatina Georgieva, "The Digital Markets Act Proposal of the European Commission: Ex-ante Regulation, Infused with Competition Principles," *European Papers* 6, no. 1 (2021): 27-28, https://www.europeanpapers.eu/en/europeanforum/digital-markets-act-proposal-european-commission-exante-regulation.

> (i) have a **significant impact** on the internal market, (ii) operate **one or more important gateways** to customers and (iii) enjoy or are expected to enjoy an **entrenched and durable position** in their operations. [669]

In order to assess these parameters, the Commission ought to evaluate aspects such as: size; turnover; market capitalization; operations; the number of business users depending on the core platform service to reach end users; the number of end users; entry barriers derived from network effects and data-driven advantages; scale and scope effects the provider benefits from, including with regard to data; and business user or end user lock-in, among others.[670] These are all aspects raised in the European Union's antitrust offensive against Google, especially in aforementioned cases.[671]

As explained in the first chapter, even though these services are provided for free to end users, the operational costs are subsidized by advertising.[672] The proposal recognizes major changes in the advertising business through which most of these platforms monetize their seemingly gratuitous operations.

> The conditions under which gatekeepers provide online advertising services to business users including both advertisers and publishers are often non-transparent and opaque. This **opacity** is partly linked to the practices of a few platforms, but is also due to the sheer **complexity** of modern day programmatic advertising. The sector is considered to have become more non-transparent after the introduction of new privacy legislation, and is expected to become even more opaque with the announced removal of third-party cookies. This often leads to a lack of information and knowledge for advertisers and publishers about the conditions of the advertising services they purchased and undermines their ability to switch to alternative providers of online advertising services.[673]

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[669] Article 3.1. Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020PC0842&from=en (my boldface).
[670] Article 3.6. Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final.
[671] More than that, "The proposed DMA is no less than *Europe's attempt to regulate Big Tech*. A closer look at the central definition of gatekeeper platforms, i.e., so-called *core platform services* (online intermediaries, search engines, social networks, video sharing platforms, certain online messengers, operating systems and cloud-computing services and their advertising activities), which have a *significant impact on the internal market, a particularly strong and entrenched market position* and serve as an *important gateway* for business users to reach end users, reveals that this regulation will practically concern the activities of the GAFAM companies plus, at best, a handful of other undertakings of paramount market power in the online sector." Leistner, "Commission's Vision for Europe's Digital Future," 2.
[672] "The fact that a service is offered free of charge is also a relevant factor to take into account in assessing dominance. In so far as users expect to receive a service free of charge, an undertaking that decides to stop innovating may run the risk of reducing its attractiveness, depending on the level of innovation on the market in question. In this respect, another relevant factor is whether there are technical or economic constraints that might prevent users from switching providers." Case AT.39740, Google Search (Shopping), 2017 E.C. § 268.
[673] Recital 42. Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final (my boldface).

Opaqueness and complexity are some of the core issues raised in criticisms of the industry. And, again, like the Digital Services Act, this central legal definition in the proposal (Google as a gatekeeper) has the potential to profoundly change and influence the legal regime to which Google Search is subject by characterizing it as a gatekeeper. This is because the DSA creates additional obligations for these core platform services, based on contestability mechanisms, transparency, and market monitoring investigations.[674]

Furthermore, the concept of transparency with regard to users' data is directly linked to a fertile and competitive market for newcomers, as explained in Recital 61.

> The data protection and privacy interests of end users are relevant to any assessment of potential negative effects of the observed practice of gatekeepers to collect and accumulate large amounts of data from end users. Ensuring an adequate level of transparency of profiling practices employed by gatekeepers facilitates contestability of core platform services, by putting external pressure on gatekeepers to prevent making deep consumer profiling the industry standard, given that potential entrants or start-up providers cannot access data to the same extent and depth, and at a similar scale.[675]

Many provisions of the DMA would deeply alter Google's business model. For example, if it were characterized as a gatekeeper, as a rule, it would have to "refrain from combining personal data sourced from these core platform services with personal data from any other services offered by the gatekeeper or with personal data from third-party services."[676] Google search would have to specifically obtain consent from users in order to make use of its ancillary applications, such as YouTube or Gmail.

Another provision would require gatekeepers to "allow business users to offer the same products or services to end users through third party online intermediation services at prices or conditions that are different from those offered through the online intermediation services of the gatekeeper."[677] Also, gatekeepers would have to "allow end users to un-install any pre-installed software applications on its core platform service" and to "refrain from

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[674] Björn Lundqvist, "The Proposed Digital Markets Act and Access to Data: A Revolution, or Not?" *IIC* International Review of Intellectual Property and Competition Law 52 (2012): 239, https://doi.org/10.1007/s40319-021-01026-0. See also: Leistner, "Commission's Vision for Europe's Digital Future," 6.

[675] Recital 61. Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final.

[676] Article 5.(a). Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final.

[677] Article 5.(b). Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final.

treating more favourably in ranking services and products offered by the gatekeeper itself or by any third party belonging to the same undertaking compared to similar services or products of third party and apply fair and non-discriminatory conditions to such ranking."[678] Finally, it requires gatekeepers to

> provide to any third party providers of online search engines, upon their request, with access on **fair, reasonable and non-discriminatory terms** to ranking, query, click and view data in relation to free and paid search generated by end users on online search engines of the gatekeeper, subject to anonymisation for the query, click and view data that constitutes personal data.[679]

These are provisions that directly respond to issues raised against Google in previous cases, such as those concerned with Google Android and Google Shopping, and that would foster competition in their markets.[680] There is no question that this is part of the European Union's institutional response to the anticompetitive practices in which Google has engaged in the past.

6 Intermediary Conclusions

Google Search currently acts as a gatekeeper of access to information online, providing both horizontal and vertical search mechanisms: links to useful websites that might contain the answer to users' queries (horizontal search); and products, images, flights, maps, videos, addresses, price comparison, phone numbers, etc. (vertical search). In addition to its dominant position, this corroborates the idea of Google as a gatekeeper of information online and, in the economic sense of its business model, a marketplace according to EU definitions (Article 4, f, of Regulation (EU) N. 524/2013 and §191 of CJEU Case N. AT.39740, the Google Shopping Case).

Google search is also a two-sided platform, since it interacts with and extracts value from both sellers (of adverts) and customers (final users/consumers). This asymmetric

[678] Article 6.(b) (d). Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final.
[679] Article 6.(j). Proposal for a Regulation of the European Parliament and of the Council on Contestable and Fair Markets in the Digital Sector (Digital Markets Act), 2020, COM/2020/842 final (my boldface).
[680] Leistner, "Commission's Vision for Europe's Digital Future," 3.

relationship allows for greater manipulation by its intermediaries, behavioral modification, misinformation, and nudging. Furthermore, it creates a lock-in effect, causing users to be so invested in its technology that even better services offered by rivals are not enough to provide actual competition. This significantly bolsters Google's wide range of integrated services, which are persistently offered to users.

Under these circumstances, the essential facilities doctrine can be of great service to those concerned with Google's anti-competitive practices. It is a controversial and exceptional measure to be applied, but it avoids the breaking-up of companies. This doctrine allows a business to hold a dominant position while requiring it to grant access to rivals in secondary markets. This approach is enforced through regulatory oversight by specialized courts or competition authorities, such as the European Commission.

Google's search principles have shifted towards personalization and engagement, with a growing need to attract more users in order to monetize their activity. The more active users are on its platforms, the more data they generate for it to profile them, which fuels its advertising tools.

The company has gradually revealed its ranking criterion, which has prompted businesses to try to manipulate its algorithm in order to appear at the top of the first results page and direct more traffic from Google Search to their websites as an online marketing strategy. Since search engine optimization (SEO) has become increasingly more valuable for businesses, Google has made sure that the functioning of its algorithm remains a secret. Secrecy also has maintained Google's competitive value in relation to other search engines.

With regard to SEO, it is necessary to strike a balance between demoting users that are manipulating results and the quest for somewhat more neutral results with regard to relevance to the user. Regulation 2019/1150 aims to achieve this because it tackles online intermediation and online search engine services. It promotes transparency and predictability on platforms, requiring that general criteria, processes, specific signals incorporated into algorithms, or other adjustment or demotion mechanisms used in connection with results ranking be made public. Additionally, the European Commission Guidelines provide further examples of such criteria: personalization information, users' history, cross-platform presence, relationship with ancillary services, and user reviews, among others.

With regard to the protection of Google's trade secret, Recital 27 of the regulation safeguards its confidentiality, stating even that making it public would, in turn, enable the deception of consumers or consumer harm through the manipulation of search results. Thus, the regulation understands that complete transparency of search engine algorithms may pose

a risk to consumers and competition due to the use of SEO and overall distortions of the use and the functioning of the algorithm.

Reminiscent of Lawrence Lessig's theory that (computer) code can also be law, according to which algorithms shape and drive human behavior, it is also possible to assume that the trade secrets protecting these algorithms are currently making law and determining social habits. Therefore, a higher degree of transparency must be achieved to balance trade secrets with social norms better.

Many options can be explored with the aim of achieving this transparency: a company may scrutinize its algorithm through audits or an internal ethical review board/committee. Courts determine when and where equitability may be more at risk, and as a result, demand greater scrutiny from third-party specialists. It is worth remembering that scrutiny of algorithmic ranking may include confidential court disclosures in the course of legal proceedings, according to Directive 2016/943.

Google's practices have been consistently found to be anti-competitive according to Article 102 of the Treaty on the Functioning of the European Union, as the company has abused its dominant position by denying access to competitors in specific markets. The European Commission has found that many of the company's courses of action were harming the internal market and damaging innovation in different ways.

In the Google Shopping, Google Android, and Google AdSense cases, Google exploited its power to strengthen its own applications and content disproportionately. Google engaged in exclusionary conduct by recommending its own vertical search comparison tools over others, obstructing the development of competing mobile operating systems, pushing exclusivity clauses on mobile device manufacturers, and through its contracts regarding the intermediation of online search engine advertisements. Instead of letting competing services freely prove their efficiency and allowing for a level playing field in the dispute for consumer preference, Google has unduly exercised its dominant position to favor itself.

For decades, Google has combined these practices with strategic acquisitions of possible competitors, free from objections from competition authorities, making for an even more concentrated market and consolidating its power over its various areas of expertise. It has hampered innovation and competition, in addition to enhancing its political power and influence over law-making bodies and regulatory institutions.

Traditionally, the judiciary has yielded its power to the fallacies of technological inevitabilism by taking approaches that put immediate benefits to consumer welfare above all else, especially when it comes to "free" services such as many of those Google provides. In

this context, competition law plays a fundamental role as part of the solution to the problems raised throughout this thesis.

Recital 71 of the GDPR may not be the silver bullet solution for Google's lack of transparency, but it is a step towards a right to explanation, to its existence in the field of data protection. Such a right's explanatory function can be systematically combined and interpreted with different bodies of EU law, including competition enforcement and consumer law provisions, which will be better analyzed over the next chapter.

Chapter 4

Users' Rights: A Relational Approach to Explanation

1 Introduction

The imposition of limitations and minimum parameters of ethics, justice, transparency, and accountability on intermediaries such as Google can create a digital environment with greater stability and information symmetry. To an international system marked by companies that intend to be global but act according to national values and business models, there is an increasingly greater need to characterize these platforms as subject to regional laws, minimum behavioral standards, social norms, and fundamental rights. In this context, the assertion of jurisdictions through densification of regulatory regimes that consider competition aspects, consumer law, data protection, and even the establishment of digital borders, among other means, is currently in vogue.

Just like the multidisciplinary nature and scope of this thesis, the matter of fundamental rights at stake in the algorithmic explainability of Google's search engine must necessarily consider the various interests involved. Internet users, either natural persons that use Google Search for their everyday queries or the businesses that wish to appear on its results page, must be weighed against the company's own interests regarding its algorithm. Fundamental rights are at the core of the European Union and are necessary for the implementation of EU Law, especially in comparison to the proprietary rights of the company that owns trade secrets. As explained in chapter 1, trade secrets as a category of intellectual assets do not enjoy the same hierarchical degree as users' fundamental rights in the European Union's legal system.

Finally, in this chapter, I further develop the idea of how to put this into practice. How can a right to explanation be implemented, considering the historical, normative, and societal state of the art available in this day and age? The legal proceduralization of these solutions is of paramount importance so that the explainability of algorithms translates from law to code and from code to users.

2 Foreign Platforms for Domestic Markets: Institutionalization and Densification of Regulatory Regimes

Jurisdiction as a concept in law is a topic that has been pondered in a more consistent manner since the Westphalian treaties, and it depicts the sovereignty of states as having clear delimitations, borders, limits, and boundaries. This idea has progressed in many different ways and gained new contours, novel forms of extraterritorial exploitation, and reinforced and modernized concepts of dividing walls. However, the internet has been consistently challenging the idea of a bordered world through an ever-more complex transnational order, one that is rarely bound by traditional international law, whether private or public, presenting new challenges to scholars, governments, and legislators.[681]

For companies that conduct their businesses globally, there is some convenience to this heterogeneity of jurisdictions and a certain inability of laws to keep up with the latest hurdles posed by borderless technology. Uber, for instance, was disruptive and enjoyed a vacuum of legislation regulating its activities for many years. Even most recently, jurisdictions have struggled to characterize its business model under the law, determining varying legal consequences as far as taxation, urban mobility, labor law, and other areas go.[682]

Nonetheless, some sort of international convergence is necessary, especially when it comes to infrastructure and communication protocols. Such is the case with the IPv4 to IPv6 transition, regulations regarding automatic international roaming, and interoperability between different software on different operating systems.[683] This is also a characteristic of a more globalized economy, one that relies on several sources of production, international chains of commerce, services, and distribution.

The idea of a borderless world achieved through the internet was a utopia that many scholars, academics, and internet governance enthusiasts praised at the beginning of the

[681] David Erdos, "Search Engines, Global Internet Publication and European Data Protection: A New Via Media?" *The Cambridge Law Journal* 79, no. 1 (March 2020): 24-27, https://doi.org/10.1017/S0008197320000197.

[682] Even though Uber's relationship with its drivers was recently characterized as one in which drivers constitute independent contractors by the law in California, United States, the same relationship, central to its business model, has been ruled as constituting an employment contract in the United Kingdom. See: Uber BV and others v. Aslam and others, No. UKSC 2019/0029, UKSC [2021] UKSC 5 (19 February 2021).

[683] See: W. Lance Bennett and Shanto Iyengar, "A New Era of Minimal Effects? The Changing Foundations of Political Communication," *Journal of Communication* 58, no. 4 (December 2008):707-731, https://doi.org/10.1111/j.1460-2466.2008.00410.x; Svetlana Vinogradova, Galina Melnik, and Tatyana Shaldenkova, "Political Technologies: The Interaction of Old and New," *Journal of Political Marketing* 20, no. 1 (2021): 60-71, https://doi.org/10.1080/15377857.2020.1869858.

internet and the World Wide Web.[684] The world was promised the democratization of access to information and the production of knowledge. However, slowly and gradually, two centuries-old standards of frontiers, borders, and national jurisdictions have been constantly reinstated in various digital forms.

Little by little, state actors such as legislative bodies, judiciary branches, and political executive powers started to exert their territorial influence over the capabilities to regulate this de-territorialized digital realm. In reality, this did not mean an expansion of powers per se, but a migration of regulation enforcement to online relations. When challenges such as a distributed infrastructure or decentralized content production started representing defiance to the exercise of state powers and capabilities, new ways of asserting control were devised, such as a gated version of the internet, like in China (the Great Digital Wall of China), or by means of surveillance of its users, which is the case with the United States and its National Security Agency.[685]

In other cases, like in Brazil, governmental investigative powers were frustrated by the application providers' constant refusal to comply with orders and seizures of data. There were occasions in which WhatsApp was suspended in Brazil by means of judicial orders due to a lack of compliance with requests to release private conversations between users to police authorities after a judicial review. This is a particularly interesting case because, since Facebook is a parent company of WhatsApp, it responded for its operations in Brazil and, consequently, for its duty to comply with authorities. Facebook's defense in Brazilian courts has been to affirm that California courts have been delegated as the forum that exercises judicial authority over Facebook's data.[686]

A transnational order of the online environment is at the core of the internet as it was conceived: distributed, open to innovation, and somewhat decentralized. Whether it was to allow instant communication between research centers in different locations[687] or to facilitate the exchange of relevant information among strategic international organizations,[688] it made

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[684] Dan Jerker B. Svantesson, *Solving the Internet Jurisdiction Puzzle* (Oxford: Oxford University Press, 2017), 8-9, https://doi.org/10.1093/oso/9780198795674.001.0001.
[685] Barton Gellman, "Secrets, Surveillance and Snowden," *The Washington Post Magazine*, May 11, 2020, https://www.washingtonpost.com/magazine/2020/05/11/2013-edward-snowden-leaked-top-secret-national-security-agency-documents-showing-how-us-was-spying-its-citizens-heres-what-happened-next/.
[686] Ericson M. Scorsim, "Brazil and the United States of America: Jurisdiction and the Application of Domestic Laws on Internet Application and Technology Companies," *Migalhas*, February 2, 2018, Hot Topics, https://www.migalhas.com/HotTopics/63,MI273592,61044-Brazil+and+the+United+States+of+America+Jurisdiction+and+the.
[687] Kim Ann Zimmermann and Jesse Emspak, "Internet History Timeline: ARPANET to the World Wide Web," *Live Science*, June 27, 2017, https://www.livescience.com/20727-internet-history.html.
[688] "Tim Berners-Lee, a British scientist, invented the World Wide Web (WWW) in 1989, while working at CERN [Conseil Européen pour la Recherche Nucléaire]. The Web was originally conceived and developed to

sense that these new methods of system interactions not be restricted to national borders. Such characteristics were amplified and reinforced with the democratization of internet access in the 1990s, especially with the acquisition of personal computers for domestic purposes at a larger scale.

One has to admit, though, that the organizational logic of the internet (IP numbers and domain name assignments) was and still is somewhat hierarchized, with a sort of orderly structure not necessarily confined by national boundaries. The fact that ICANN (previously IANA), the provider of top level domain assignments for the entire globe, until now remains a private entity bound by the laws of the state of California is a testament to the concentration of power among the frontrunners of the internet and the geopolitical control of one nation. The fact that the top level domain ".amazon" was recently assigned to Jeff Bezos' company Amazon after a lengthy dispute with South-American nations in the Amazon region also testifies to this[689] and is a perfect example of a geopolitical dispute over the digital domain that reflects both national and private interests.

Despite this characteristic, the internet was conceived to be horizontal: maximum efficiency in communications required autonomy, a lack of inspection of packages of data being transmitted online, and a preferably latency-free exchange of information.[690] In order to fulfill its responsiveness and adaptability purposes, decentralized content production and access to information were paramount,[691] and many internet actors profited (literally and figuratively) from these mildly self-governing characteristics. Internet access providers sprouted,[692] new software and hardware were required for these communication protocols, users were able to access information with less intermediation, and governments saw new

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meet the demand for automated information-sharing between scientists in universities and institutes around the world. / CERN is not an isolated laboratory, but rather the focal point for an extensive community that includes more than 17 000 scientists from over 100 countries. Although they typically spend some time on the CERN site, the scientists usually work at universities and national laboratories in their home countries. Reliable communication tools are therefore essential. / The basic idea of the WWW was to merge the evolving technologies of computers, data networks and hypertext into a powerful and easy to use global information system." "Where the Web Was Born," CERN, accessed April 15, 2021, https://home.cern/science/computing/birth-web/short-history-web.

[689] Matt Binder, "Amazon Prevails in the Battle with South American Countries for '.amazon' domain name," *Mashable*, May 21, 2019, https://mashable.com/article/amazon-domain-name-icann-approved/.

[690] Jovan Kurbalija, *An Introduction to Internet Governance*, 7th ed. (Belgrade: Diplo Foundation, 2016), 36, https://www.diplomacy.edu/sites/default/files/AnIntroductiontoIG_7th%20edition.pdf.

[691] "In the early days it was easy to assume that the Web, and the Internet of which the Web is a part, was ungoverned and ungovernable. It was supposed to be a perfect libertarian space, free and open to all voices, unconstrained by the conventions and norms of the real world, and certainly beyond the scope of traditional powers of the state." Siva Vaidhyanathan, *The Googlization of Everything (And Why We Should Worry)* (Los Angeles: University of California Press, 2011), 13.

[692] "Key Internet Statistics in 2020," Cable Providers, February 4, 2020, https://cableproviders.com/key-internet-statistics.

possibilities of furthering public services (education, security, transparency, taxation, polling, and foreign relations, among many others).

A lack of frontiers thus marked the use of the internet as a free and open place, with many possibilities and domains in incipient dispute: "The Internet in the late twentieth century was too global, too messy, and too gestational to justify national or international regulation."[693] Not bound by national borders, users were increasingly able to produce content that aimed to be universal and reach new audiences. There was a sense of anarchy, hope, and idealism to all this, which can be poetically exemplified by John Perry Barlow's Declaration of the Independence of Cyberspace, in 1996.

> Cyberspace consists of transactions, relationships, and thought itself, arrayed like a standing wave in the web of our communications. Ours is a world that is both everywhere and nowhere, but it is not where bodies live. We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth. We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are all based on matter, and there is no matter here.[694]

The telecommunications industry improved its capabilities by means of new submarine and underground cables that connected countries and continents and allowed for more efficient transmissions of data.[695] The idea of an anarchist cyberspace purported an internet that was "decentralized and connected, and so would automatically lead to a competitive and distributed marketplace"[696] with obvious economic appeal to emerging digital entrepreneurs. Nonetheless, this also created some difficulties with regard to the exercise of power by the State.

For instance, how would states verify the identities of users who committed wrongdoings online? The registry of access logs and internet protocols had to be standardized in order to allow for future criminal investigations to take place. Matters of freedom of

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[693] Vaidhyanathan, *Googlization of Everything*, 39.
[694] John Perry Barlow, "A Declaration of the Independence of Cyberspace," Electronic Frontier Foundation, February 8, 1996, https://www.eff.org/cyberspace-independence. In regard to the Declaration, Svantesson states: "The somewhat enigmatic quality of this 'Declaration' may make it look amusingly eccentric, or even utterly absurd, today. However, it must be remembered that it was presented to a world very different from the world of today, at least far as [*sic*] Internet use is concerned. We have since long passed the point at which it was still possible to differentiate between the 'real' bricks and mortar world, on the one hand, and the 'virtual' world of Cyberspace on the other." Svantesson, *Solving the Internet Jurisdiction Puzzle*, 92-93.
[695] James Griffiths, "The Global Internet is Powered by Vast Undersea Cables. But They're Vulnerable," *CNN*, July 26, 2019, World, https://edition.cnn.com/2019/07/25/asia/internet-undersea-cables-intl-hnk/index.html.
[696] Jamie Bartlett, *The People Vs Tech: How the Internet Is Killing Democracy (and How We Save It)* (London: Penguin Random House, 2018), 132-133.

expression and censorship started being brought to courts with the underlying issue that these new platforms presented additional challenges due to nuanced attribution of responsibilities such as moderating content, discouraging copyright violations, and adapting consumer protection rules in the blooming market of online shopping. Likewise, competition authorities had to grasp the hurdles of digital innovation and the technicalities of how these markets operated and monetized, in addition to a pervasive resistance of tech firms to being regulated as they enacted their new business models.

Also, if search warrants to retrieve data were to be complied with, in the case of servers being located in other jurisdictions, how would that be legally feasible in a timely manner? Letters rogatory were and still are extremely slow-paced and excessively proceduralized.

Several international cooperation agreements started being developed, and protocols were devised between judicial authorities from different jurisdictions.[697] In fact, this is still a challenge nowadays, so it is possible to imagine what a conundrum it was to achieve such results in the early days of the web.

Alongside these emerging technologies and markets, a Westphalian logic of states started to be imposed, or at least attempted to be imposed, on the digital realm. State and private actors with more leverage, especially those more prone to technological innovation, began to assert themselves in this new facet of international politics: who sets the rules for attributing URLs in the Domain Name System (DNS)? Who defines the rules of Internet Protocol (IP) and Transmission Control Protocol (TCP) assignment? Which transnational companies will get ahead in the flourishing submarine cables and international communication markets?

This assertion of state power promoted a densification of the physical and logical infrastructures of the internet through new regulatory exercises of sovereignty.[698] Rapidly, a quest for the digital exercise of state sovereignty expanded to other areas and concerns of government besides infrastructure, like national economies and social entities.

These initiatives, which I classify as constituting a **densification of regulatory regimes**, followed decades of neoliberal economic trends that sought to avoid excessive government regulation over markets. Tim Wu contends that the influence of the Chicago

[697] Bertrand de La Chapelle and Paul Fehlinger, *Jurisdiction on the Internet: From Legal Arms Race to Transnational Cooperation* (Paris: Internet & Jurisdiction, April 2016), https://www.internetjurisdiction.net/uploads/pdfs/Papers/IJ-Paper-Jurisdiction-on-the-Internet-PDF.pdf. See also: Erdos, "Search Engines," 24-27.
[698] Kurbalija*, Introduction to Internet Governance,* 35, 60, 70.

School of antitrust policy over the executive and judicial branches of the United States, which put forward regulatory measures only when a very narrow concept of consumer welfare was at stake, left little or no room for discussions, in general, regarding monopolization and the concentration of markets or their damaging long-term effects on innovation.[699]

This conservative antitrust agenda was partially supported by Robert Bork in *The Antitrust Paradox*,[700] a seminal book that called for a refocusing of antitrust in the United States, and influenced legislators and scholars worldwide. Robert Bork redefined antitrust in the U.S. in a way that reduced its material scope and allowed for increasing judicial conservatism when dealing with competition in the courts.[701]

Among his many arguments, Bork's contention was that the center of attention for antitrust ought to be anti-competitive horizontal price fixing and market mergers leading to monopolies.[702] This is a very narrow view of what market failures are and how they should be remedied. In fact, it places excessive emphasis on prices as the sole measurement of consumer welfare, as if there were no societal harms as long as prices remained the same or even decreased.[703] Applied to a digital 21st-century logic, when several products and services are offered online, even for free, this rigid perception of antitrust leads to even more neglect of contemporary market failures. According to Melamed and Petit, "firms that operate in platform markets have incentives to support aggressive low-price strategies, leveraging across multiple lines of businesses, discrimination against digital complements, and defensive growth through predatory startup acquisitions and M&A."[704]

Since the 1970s, decades of American antitrust hibernation meant that cost-benefit analyses usually were performed principally based on neoliberal ideological values, which rebuffed state interference in markets, as much as possible.[705] According to leading consumer

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[699] Tim Wu, *The Curse of Bigness: Antitrust in the New Gilded Age* (New York: Columbia Global Reports, 2018), 108-109.
[700] Robert H. Bork, *The Antitrust Paradox* (New York: Basic Books, 1978).
[701] Leon B. Greenfield, "Afterword: 'Lorain Journal' and the Antitrust Legacy of Robert Bork," *Antitrust Law Journal* 79, no. 3 (2014): 1047-1072, http://www.jstor.org/stable/43486978.
[702] Jonathan B. Baker, "Taking the Error Out of 'Error Cost' Analysis: What's Wrong with Antitrust's Right," *Antitrust Law Journal* 80, no. 1 (July 19, 2015): 4, http://dx.doi.org/10.2139/ssrn.2333736.
[703] Regarding the concept of consumer welfare (CW), Melamed and Petit assert: "Broadly speaking, the CW standard embodies the idea that antitrust laws promote economic welfare and are intended to protect economic agents from the predictable harms that are caused by improperly obtained market power." A. Douglas Melamed and Nicolas Petit, "The Misguided Assault on the Consumer Welfare Standard in the Age of Platform Markets," *Review of Industrial Organization* 54, no. 4 (June 2019): 742, http://dx.doi.org/10.2139/ssrn.3248140.
[704] Melamed and Petit, 743.
[705] Peter J. Hammer, "Antitrust beyond Competition: Market Failures, Total Welfare, and the Challenge of Intramarket Second-Best Tradeoffs," *Michigan Law Review* 98, no. 4 (February 2000): 900-901, https://doi.org/10.2307/1290334. See also: Louis Silvia, "Economics and Antitrust Enforcement: The Last 25 Years," *International Journal of the Economics of Business* 25, no. 1 (2018): 119–129, https://doi.org/10.1080/13571516.2017.1392748.

welfare cases in the Supreme Court, market failures would fix themselves, and many lawsuits were administratively and judicially dismissed either based on the grounds that the conduct in question was justified by cost reduction or efficiency or due to the general insulation of businesses from intervention.[706]

As might be expected, this non-interventionist economic and judicial perspective permeated politics and vice versa. Many policies of the 1980s and 1990s gave rise to the deregulation of markets, monetary liquidity, and the strengthening of international supply chains. Trade agreements allowed for a free flow of products and an increase of overseas production of goods, and, at the same time, many developing countries welcomed the opportunity for their industrialization.[707]

Among other things, this new phase of economic globalization favored overall price reductions in developing nations, which reinforced the narrow, neoliberal view of consumer welfare and competition enforcement. A non-interventionist discourse also permeated the inception of Silicon Valley, which in turn exported it to other jurisdictions where startups and major platforms provide the same kind of services, even though most of the services they provide are technically free to use.[708] Thus, how do authorities properly regulate and safeguard a broader concept of consumer welfare if these monopolies have the tendency not only to push prices down but also provide services for free?

Quite often, the payment for these services lies in the processing of personal data. According to Directive 2019/770, regarding contracts for the supply of digital content and digital services, "'price' means money or a digital representation of value that is due in exchange for the supply of digital content or a digital service."[709] Recital 24 of the same directive corroborates this notion of value enshrined in the exchange of personal data for digital services, as well as its contractual effects.

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[706] Baker, 2. About this issue, Melamed and Petit assert: "The CW paradigm serves two very different but nonetheless important functions that do not involve requiring anyone to maximize consumer welfare: First, the CW paradigm makes clear that the antitrust laws are about conduct that reduces or is likely to reduce economic welfare and is not intended to prevent noneconomic harms such as harm to the political process or to serve other social objectives. Second, it provides a criterion to guide the formulation and case-by-case application of the specific rules that are used to identify prohibited, anticompetitive conduct." Melamed and Petit, "Misguided Assault," 746.

[707] See: Alice Amsden, *The Rise of "the Rest": Challenges to the West from Late-Industrialization Economies* (New York: Oxford University Press, 2001).

[708] Bartlett, *The People Vs Tech*, 144. See also: Christian Rusche, "Data Economy and Antitrust Regulation," *Intereconomics* 54, no 2 (March 2019): 116, https://doi.org/10.1007/s10272-019-0804-5.

[709] Article 2.7: Directive 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 (Text with EEA relevance), 2019, O.J. (L 136), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0770.

> Digital content or digital services are often supplied also where the consumer does not pay a price but provides personal data to the trader. Such business models are used in different forms in a considerable part of the market. While fully recognising that the protection of personal data is a fundamental right and that therefore personal data cannot be considered as a commodity, this Directive should ensure that consumers are, in the context of such business models, entitled to contractual remedies. This Directive should, therefore, apply to contracts where the trader supplies, or undertakes to supply, digital content or a digital service to the consumer, and the consumer provides, or undertakes to provide, personal data.[710]

Many internet governance stakeholders have incorporated neoliberal rhetoric in their views, taking for granted the role of regulation in fostering innovation and rallying around the myth of a free market online—the economic take on the cyberpunk aspirations of anarchy.

> [W]e have become so allergic to the notion of regulation that we assume brilliant companies arise because of the boldness and vision of investors and the talents of inventors. We actually think there is such a thing as a free market, and that we can liberate private firms and people from government influence. We forget that every modern corporation—especially every Internet business—was built on or with public resources. And every part that does business conforms to obvious policy restrictions.[711]

In the particular case of Google, with all of its resources, personnel, and worldwide range, it is easier for most to establish close relations and influence over the policymaking of internet rules. The company funds many civil society institutes, individuals' academic research, and lobbyists.[712]

For example, in the 2017 article "The Google Case in the EU: Is There a Case?," author Ioannis Kokkoris lays out several arguments in an attempt to refute the idea that Google's tendency toward monopolistic positions and anti-competitive stances justify antitrust action within the scope of the European Union, claiming this would be unjustifiable and contrary to consumer welfare as he sees it. He even affirms that "if it ain't broken don't fix it."[713] The author then asserts that the antitrust investigation against Google at the Federal

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[710] Recital 24. Directive 2019/770 of the European Parliament and of the Council of 20 May 2019. See also Recital 31: "Digital content and digital services are often supplied online under contracts under which the consumer does not pay a price but provides personal data to the trader. Directive 2011/83/EU already applies to contracts for the supply of digital content which is not supplied on a tangible medium (i.e. supply of online digital content) regardless of whether the consumer pays a price in money or provides personal data." Directive (EU) 2019/2161 of the European Parliament and of the Council of 27 November 2019 Amending Council Directive 93/13/EEC and Directives 98/6/EC, 2005/29/EC and 2011/83/EU of the European Parliament and of the Council as Regards the Better Enforcement and Modernisation of Union Consumer Protection Rules, 2019, O.J. (328), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L2161&qid=1632656527436.

[711] Vaidhyanathan, *Googlization of Everything*, 45-46.

[712] "Collaborations with the research and academic communities," Google Research, accessed April 15, 2021, https://research.google/outreach/.

[713] Ioannis Kokkoris, "The Google Case in the EU: Is There a Case?" *The Antitrust Bulletin* 62, no. 2 (June 2017): 330, https://doi.org/10.1177/0003603X17708362.

Trade Commission (FT) in the United States, during the Barack Obama administration, found no traces of anti-competitive behavior and exonerated the company of abusive conduct, as if these regulatory systems and enforcement agencies were comparable in their principles, ways of functioning, and reasoning. On the last page of his very compelling manifesto, Professor Ioannis Kokkoris notes that "the research for this paper has been kindly supported by Google Inc.,"[714] which leads us to consider his arguments with at least some degree of distrust.

Interestingly, according to Jamie Bartlett, "[...] 53 people worked at both Google and the White House during the Obama administration,"[715] which also prompts us to wonder if the FTC's (in)actions regarding anticompetitive behavior from Google were solely based on factual grounds.

Google also sponsors academic projects and events and runs ads in defense of internet freedom and net neutrality, in addition to providing free versions of some of its applications to academic institutions, such as Google Classroom.[716] This all creates a sort of soft power that Google strategically exercises whenever unfavorable regulation is about to be devised, including through a White House special advisor, such as Eric Schmidt during Barack Obama's administration.

Considering the history of the internet and the increase of access across the board, it was only a matter of time until problems arose regarding content moderation, limits on freedom of expression, liability, and other grey areas in the regulation of internet governance. Specifically concerning search engines, which are the subject of this analysis, the issues started to be delineated.

> Problems still ensue when legal authorities apply legal rules that are not developed to address and fulfill content removal requests. A user's request to remove content from search engine results, when the content is still live and has not been removed from the website is a recurring problem. Websites and their content listed among search results are created by and uploaded by third parties; websites are owned by third parties, not the search engine operator, which makes it legally and technically impossible for search engine operators to interfere with the content. The relevant

[714] Kokkoris, "Is There a Case?" 333.
[715] Bartlett, *The People Vs Tech*, 138.
[716] The institution where I work, Universidade Federal de Juiz de Fora (Juiz de Fora Federal University), where I teach in the Department of Law, has adopted Google Classroom as our virtual teaching environment since the beginning of the COVID-19 pandemic. Previously, we had a more rudimentary open access virtual space to use as teaching support for our undergraduate and graduate courses. "Google Classroom (Google Sala de Aula): Gerenciamento de atividades e rotina da sala de aula em tempos de distanciamento social – manual para o professor," Universidade Federal de Juiz de Fora, July 10, 2020, https://www.ufjf.br/ciensinar/2020/07/10/google-clasroom-google-sala-de-aula-gerenciamento-de-atividades-e-rotina-da-sala-de-aula-em-tempos-de-distanciamento-social-manual-para-o-professor/.

> content must be removed from the original website for the content to avoid the search engine's algorithmic formulas.[717]

I disagree with this opinion, which does not recognize the responsibilities of search engines as intermediaries, since these platforms curate content, including through algorithmic decisions, declining the ranking of certain results, such as those that violate copyrights, for example. The same is true with pornographic results, which are not usually indexed on Google Search.

Liability for third-party content and, consequently, the need for content moderation, increases the operational costs of maintaining and improving the algorithm, including in terms of jurisdictional interoperability.[718] Just like its technical counterpart, the concept of jurisdictional interoperability refers to the need for companies to operate within different jurisdictions, in compliance with various legal traditions, regulations, statutes, and jurisprudence. Therefore, there is strong resistance from search engines to comply with content deletion, moderation and de-indexation.[719]

Thus, one of the reasons why the densification of protective regimes for users' rights has either become more necessary or has gained prominence, depending on the jurisdiction, is that the internet is becoming increasingly integrated. Unlike during its initial decades, in which a sort of regulatory anarchism reigned and it was easier to identify individual threats to users' fundamental rights, the big players of the web are offering all sorts of applications (especially Google, from email to video streaming and education services), not to mention the mutual profitability of data-sharing between different businesses, which certainly supports the idea of users' behavior being a commodity under surveillance capitalism.[720]

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[717] Gönenç Gürkaynak, İlay Yılmaz, and Derya Durlu, "Understanding Search Engines: A Legal Perspective of Liability in the Internet Law Vista," *Computer Law & Security Review* 29, no. 1 (February 2013): 45, https://doi.org/10.1016/j.clsr.2012.11.009.

[718] "Just as the Internet is a successful network of networks, the midterm solution to the jurisdictional issues online will be found in what we can see as a system of legal systems—a system in which our domestic legal systems operate smoothly together with a minimum of inconsistencies and clashes. Importantly, this means that rather than sitting back waiting for a miraculous international agreement addressing all the jurisdictional concerns online, everyone can get involved—law reformers, courts, legislators, lawyers, legal academics, civil society, and law students—in identifying uniting features and in chipping away at the inconsistencies, contradictions, and clashes that hinder interoperability between the various legal systems that govern our conduct online." Svantesson, *Solving the Internet Jurisdiction Puzzle*, 121. See also: Lawrence J. Trautman, "How Google Perceives Customer Privacy, Cyber, E-Commerce, Political and Regulatory Compliance Risks," *William & Mary Business Law Review* 10, no. 1 (2018-2019): 35, http://dx.doi.org/10.2139/ssrn.3067298.

[719] Carsten M. Wulff, "The Right to Be Forgotten in Post-Google Spain Case Law: An Example of Legal Interpretivism in Action?" *Comparative Law Review* 26 (January 2021): 259, http://dx.doi.org/10.12775/CLR.2020.010.

[720] Eli Pariser, *The Filter Bubble: What the Internet Is Hiding from You* (London: Penguin Books, 2011), 45.

Users worldwide are constantly being demanded to gratuitously supply their data, biometrics, behavioral surplus, location, among other disclosures of information, albeit meeting less reciprocity from governments or private entities.[721]

> [W]e've seen time and again that mathematical models can sift through data to locate people, who are likely to face great challenges, whether from crime, poverty, or education. It's up to society whether to use that intelligence to reject and punish them—or to reach out to them with the resources they need. We can use the scale and efficiency that make WMDs [Weapons of Math Destruction] so pernicious in order to help people. It all depends on the objective we choose.[722]

Trying to keep up with this growing need for a regulatory response, some jurisdictions have sought to adjust and set minimum standards of protection for internet users by means of a densification of protection regimes. While Brazil passed a Bill of Internet Rights in 2014 and a data protection law in 2018, one very much inspired by the GDPR, even in the United States it is possible to see legislative initiatives regarding data privacy at a state level.[723]

As seen in previous chapters, within the European Union, there were many strategies regarding the regulation of online relations over the last decades: consolidation of data protection laws in the EU,[724] both by means of Directive 95[725] and of the GDPR;[726] antitrust efforts by the European Commission; the establishment of minimum explanatory standards

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[721] According to Frank Pasquale: "[W]hile powerful businesses, financial institutions, and government agencies hide their actions behind nondisclosure agreements, 'proprietary methods,' and gag rules, our own lives are increasingly open books. Everything we do online is recorded; the only questions left are to whom the data will be available, and for how long." Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (Cambridge: Harvard University Press, 2015), 3.

[722] Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York: Crown Publishers, 2016), 118.

[723] Such is the case of California, Nevada, Maine, among others. See: California Consumer Privacy Act of 2018, Cal. Civ. Code §§ 1798.100 *et seq*, https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=CIV&division=3.&title=1.81.5.&part=4.&chapter=&article=; Nevada's online privacy law, 2017, amended in 2019, NRS 603A.300- 603A.360, https://www.leg.state.nv.us/NRS/NRS-603A.html; An Act To Protect the Privacy of Online Customer Information, Maine's LD 946, June 6, 2019, http://www.mainelegislature.org/legis/bills/bills_129th/billtexts/SP027501.asp.

[724] Bart van der Sloot and Frederik Z. Borgesius, "Google and Personal Data Protection," in Aurelio Lopez-Tarruella, ed., *Google and the Law: Empirical Approaches to Legal Aspects of Knowledge-Economy Business Models* (Den Haag: T.M.C. Asser Press, 2012), 75-111.

[725] Directive 95/46/EC, of the European Parliament and of the Council on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data, 1995, O.J. (L 281), https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:en:HTML.

[726] 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) (Text with EEA Relevance), 2016 O.J. (L *119*), http://data.europa.eu/eli/reg/2016/679/oj/eng.

for search engines and intermediate platforms according to Regulation 2019/1150;[727] expansion of privacy adequacy standards of the EU's GDPR for economic partners; the ePrivacy Directive;[728] the Digital Single Market Strategy (including the proposals for the Digital Markets Act and for the Digital Services Act);[729] among many others. These contributed to a densification of regulatory regimes that are aimed at increasing competition and consumer welfare, safeguarding users' fundamental rights, setting minimum standards and best practices for companies that wish to operate in the European market and, eventually, reasserting the Union's sovereignty in the online environment.[730]

Since the aspects of intellectual assets, data protection, and competition were already the focus in previous chapters, I now turn to the legal benchmarks related to the protection of users' rights. As I explained in the introduction of this thesis, **user's rights** is an umbrella term under which it is possible to include four primary, specific notions of individual users' rights online, including consumers: access to information, freedom of expression, non-discrimination, and privacy. Henceforth, it will be to these notions that I refer when referring to the concept of users' rights.

3 Asserting Rights for Whom?

In order to analyze users' rights within the scope of this thesis, it is possible to identify the interests of at least three parties involved: individual users of search engines, that is, natural persons that perform queries and navigate results from the results page;[731] business users of search engines, which are traders that wish to see their websites listed in the results page,

[727] Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on Promoting Fairness and Transparency for Business Users of Online Intermediation Services, 2019 O.J (L 186), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1150.
[728] Directive 2002/58/EC, of the European Parliament and of the Council of 12 July 2002 Concerning the Processing of Personal Data and the Protection of Privacy in the Electronic Communications Sector (Directive on Privacy and Electronic Communications), 2002, O.J. (L 201), https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32002L0058.
[729] European Commission, "Digital Single Market Strategy," mid-term review, May 6, 2015, https://eur-lex.europa.eu/content/news/digital_market.html.
[730] Svantesson calls this an era of "complex hyper-regulation." Svantesson, *Solving the Internet Jurisdiction Puzzle*, 105.
[731] Article 2.1. Directive 2011/83/EU, of the European Parliament and of the Council of 25 October 2011 on Consumer Rights, Amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and Repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council Text with EEA relevance, 2011, O.J. (L 304), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32011L0083.

especially in the midst of non-paid results (either on vertical or horizontal search);[732] and the company itself, Google/Alphabet. This categorization of groups aims to narrow this section's investigation to the interests of the two types of users of search engines: individual users and business users.

On the one hand, as a general rule, **individual users** are associated with consumer relations. They are the end-users of the platform, the natural persons who suffer if they do not have access to an accurate ranking of information and to competitors with equal chances of being displayed on the platform because the company that owns it abuses its dominant power. Even if their relationship with the search engine is free from subscriptions and access fees, Google Search establishes an indirect monetization of users' data and activity between the businesses Google intermediates through ads. This is referred to as business-to-consumer relations (B2C). Natural persons access their websites via Google and either generate revenue through purchases or through an increase of traffic online (websites that depend on advertising).[733] Therefore, consumer rights are of the utmost importance when analyzing any pernicious effects that Google has on these relations.

On the other hand, **business users** establish business-to-business relations (B2B) with Google on its search engine. Their products and services may or may not compete with Google's, but they do have an interest in being well-ranked by the company's algorithm. In some cases, these relations are monetized through paid ads, by which these traders' websites appear on a privileged section of the results page, which increases their chances of receiving clicks by individual users.[734] In chapter 3, I dealt with the situation of competitors that operate in the Google market, and how they are hampered by the company's possibly biased ranking policy, the consequence being that "Google's anticompetitive conduct has a chilling effect on competition that could resonate throughout future generations of the internet."[735]

These relationships have been described in some detail over previous chapters, but I wish to highlight some of the legal instruments involved according to their perspectives. The

[732] Article 2.2, Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on Consumer Rights.
[733] Tim Wu, *The Attention Merchants: The Epic Scramble to Get inside Our Heads* (New York: Vintage Books, 2017), 296-297.
[734] "[T]hese firms would likely 'have to spend much more on advertising to make up for the lost traffic coming from Google queries,' which is money they could otherwise put toward product development or other productive uses. Moreover, Google's favoritism could threaten innovation generally. It is easy to see how an inventor could be deterred from investing his blood, sweat and tears into this idea for a product with the looming threat of Google usurping it soon after." Joshua G. Hazan, "Stop Being Evil: A Proposal for Unbiased Google Search," *Michigan Law Review* 111, no 5 (March 2013): 806, https://repository.law.umich.edu/mlr/vol111/iss5/5.
[735] Hazan, 806.

interplay between algorithms and Google's business interests allows for discrimination against prices, services, and products, as well as a "hacked" competition on online platforms. This sets the tone for one of the main issues raised in this section: consumers are ultimately harmed by this practice, so they need further assurances that competition will be respected, either from competition authorities, legislative bodies, or markets. By creating a clearer picture of the issue of market dynamics from the perspective of users (end users or business users), even when it comes to seemingly free services like most of Google's services, it is possible to assert the importance of algorithmic explanation as a means of protecting fundamental rights.

The focus on business users brings with it a new perspective and facet of this problem, which can be better justified even based on the fundamental rights present in the EU Charter and other documents. For example, Article 11 and Recital 37 of Regulation 2019/1150, in an effort to ensure transparency and fairness, both in online intermediation and online search engine services, requires the implementation of complaint-handling systems. The objective of this is to "help business users to understand the main types of issues that can arise in the context of the provision of different online intermediation services and the possibility of reaching a quick and effective bilateral resolution."[736] These systems should be "easily accessible and free of charge for business users.[737]

For individual users, article 17(9) of the Digital Single Market Directive implements similar mechanisms in order to regulate platforms outside of court proceedings and in a timely manner.

> Member States shall provide that online content-sharing service providers put in place an effective and expeditious complaint and redress mechanism that is available to users of their services in the event of disputes over the disabling of access to, or the removal of, works or other subject matter uploaded by them. Where rightholders request to have access to their specific works or other subject matter disabled or to have those works or other subject matter removed, they shall duly justify the reasons for their requests. Complaints submitted under the mechanism provided for in the first subparagraph shall be processed without undue delay, and decisions to disable access to or remove uploaded content shall be subject to human review. Member States shall also ensure that out-of-court redress mechanisms are available for the settlement of disputes. Such mechanisms shall enable disputes to be settled impartially and shall not deprive the user of the legal protection afforded by national law, without prejudice to the rights of users to have recourse to efficient judicial remedies.[738]

[736] Recital 37. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[737] Article 11. Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[738] Article 17(9). Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC (Text with EEA relevance), 2019, O.J. (L 130), https://eur-lex.europa.eu/eli/dir/2019/790/oj.

These sorts of regulatory tools go hand in hand with an overarching right to explanation in digital environments, since they improve transparency and an effective right to information on these platforms.

In European Consumer Law, there are many information requirements to allow users to make the best possible decision when purchasing products or services.[739] The Consumer Rights Directive 2011/83/EU (CRD), as amended by Directive 2019/2161,[740] requires that information be displayed "in a clear and comprehensible manner, if that information is not already apparent from the context."[741] Undoubtedly, "consumers without exception know less than data holders about the scope and pervasiveness of data collection and the use of voluntarily shared or inferred (i.e. mined) personal data,"[742] especially in data-driven business models, such as Google's.

Similar to the GDPR, Directive 2011/83/EU recognizes that an **asymmetrical relationship** exists between Google and its users, and actively protects the weaker link, whether it be the data subject or the consumer.[743] Both pieces of legislation are also similar when it comes to envisaging legal tools for the subjects of this protection: information requirements, right to withdraw, and jurisdictional choice.[744] Moreover, article 12 of TFEU calls for consumer protection requirements to be taken into account in the definition and implementation of other Union policies and activities, which indicates a systematic legislative approach towards consumer law in the European Union.[745]

However, commendable as these provisions may be, their reasoning stems from the idea that consumers are rational beings. According to Anne-Lise Sibony, "European laws in

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[739] "The doctrine underpinning EU consumer law is that more information is better. As mentioned, this belief has underpinned EU consumer law since the very beginning." Genevieve Helleringer and Anne-Lise Sibony, "European Consumer Protection Through the Behavioral Lense," *Columbia Journal of European Law* 23 (May 16, 2017): 623, https://ssrn.com/abstract=3176817.

[740] Directive (EU) 2019/2161 of the European Parliament and of the Council of 27 November 2019.

[741] Article 5. Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on Consumer Rights.

[742] José Tomás Llanos, "A Close Look on Privacy Protection as a Non-Price Parameter of Competition," *European Competition Journal* 15, no 2–3 (July 16, 2019): 238, https://doi.org/10.1080/17441056.2019.1644577.

[743] "[I]f the market failure consisted in asymmetries of information, the law could restore symmetry—and thereby well-functioning markets—by mandating that the better informed party (the trader) provides the less informed party (the consumer) with the relevant information." Helleringer and Sibony, "European Consumer Protection," 620.

[744] Matilde Ratti, "Personal-Data and Consumer Protection: What Do They Have in Common?" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 378-379, https://doi.org/10.1007/978-3-662-57646-5.

[745] Article 12: "Consumer protection requirements shall be taken into account in defining and implementing other Union policies and activities." Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012E/TXT .

the field of consumer protection are still drafted as though the scarcity of information were the issue. The problem is that the scarce resource is not information, but attention."[746]

This echoes the idea of an "attention economy" as described by Shoshana Zubboff, especially with regard to the economics involved in users of online platforms being subjected to an avalanche of privacy notices, acceptance agreements, and notifications of policy updates.[747] Google search users do not generally read its terms of service. They rarely question its putative neutrality.[748] The information is usually there, but, more often than not, accompanied by information and click fatigue.[749] Without any actual interest or time to read all notices, users click on and continue browsing, unaware of the critical risks and liabilities to which they might be subjecting themselves.

Considering this lack of consumer attention, it is important for regulators to contemplate consumer behavior in their policy-making and judicial decisions. This is also an obligation under the Treaty on the Functioning of the European Union when proposing new legislation.

> The Commission, in its proposals envisaged in paragraph 1 concerning health, safety, environmental protection and consumer protection, will take as a base a high level of protection, taking account in particular of any new development based on scientific facts. Within their respective powers, the European Parliament and the Council will also seek to achieve this objective.[750]

Behavioral insights allow for a better understanding of human decision-making that is not solely based on the availability of plentiful information. Rather, it takes into consideration the complexities of consumer choice, which can be considerably influenced by a number of instrumentarian stimuli, such as sophisticated design, marketing, nudging,

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[746] Anne-Lise Sibony, "Can EU Consumer Law Benefit From Behavioural Insights?" in *European Perspectives on Behavioural Law and Economics*, org. Klaus Mathis (Cham: Springer International Publishing, 2015), 72, https://doi.org/10.1007/978-3-319-11635-8_5.

[747] Shoshana Zuboff, *The Age of Surveillance Capitalism* (New York: Profile Books Ltd, 2019), 180. See also: Wu, *Attention Merchants*, 237.

[748] Marcelo Thompson, "In Search of Alterity: On Google, Neutrality and Otherness," in Aurelio Lopez-Tarruella, ed., *Google and the Law: Empirical Approaches to Legal Aspects of Knowledge-Economy Business Models* (Den Haag: T.M.C. Asser Press, 2012), 387-388.

[749] According to Helleringer and Sibony: "The newly received behavioral wisdom could be summarized as follows: 'disclosure requirements are the hypocrite's version of consumer protection. The law mandates disclosure of information that consumers will not read, that they would not understand it if they read it, and upon which they would not act if they understood it.' From there, some authors argue that disclosure mandates are not helpful and can even be harmful. We disagree with this very general conclusion: [. . .] it appears to us that in the European context, information disclosure remains a worthy regulatory tool." Helleringer and Sibony, "European Consumer Protection," 624.

[750] Article 114.3. Consolidated Versions of the Treaty on the Functioning of the European Union, October 26, 2012.

tuning, herding, conditioning, etc.[751] This might mean that more scientific studies regarding the psychology and economics of behavior modification are necessary to guide courts and legislators better: "Behaviorally-informed regulatory innovation should happen at EU level. Regulatory innovation can occur by way of new instruments, but also new ways to interpret and enforce existing legislation."[752]

If we apply this reasoning to search engines and intermediation platforms, regulation 1150/2019 requires the disclosure of many parameters that may better inform users of the criteria used in the automated decisions that lead to a results page.[753] In a sense, it is exactly what this thesis is advocating for: better informational elements to reduce asymmetries and allow for reasonable explanations as to how algorithmic decisions are made. However, is this enough to induce a more critical use of these digital tools? It certainly supplies more information, but it does not necessarily translate into greater protection of users against unfair practices, for example.

Regarding unfair commercial practices, the Unfair Commercial Practices Directive 2005/29/EC (UCPD), amended in 2019, incorporates the possibility of behavioral analysis in Articles 2 and 5.

> Article 2: For the purposes of this Directive: (e) 'to **materially distort the economic behaviour** of consumers' means using a commercial practice to appreciably impair the consumer's ability to make an informed decision, thereby causing the consumer to take a transactional decision that he would not have taken otherwise;
>
> [. . .]
>
> Article 5.2: A commercial practice shall be unfair if: (b) it **materially distorts or is likely to materially distort the economic behaviour** with regard to the product of the average consumer whom it reaches or to whom it is addressed, or of the average member of the group when a commercial practice is directed to a particular group of consumers.[754]

Additionally, Directive 2005/29/EC deems factual omissions as possibly misleading, thus worthy of legal proceedings or legal actions.

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[751] Zuboff, *Age of Surveillance Capitalism*, 339.
[752] Sibony, "Can EU Consumer Law Benefit," 76.
[753] Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019.
[754] Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 Concerning Unfair Business-to-Consumer Commercial Practices in the Internal Market and Amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council ('Unfair Commercial Practices Directive') (Text with EEA relevance), 2005, O.J. (L 149), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32005L0029 (my boldface).

> Article 7.1: A commercial practice shall be regarded as misleading if, in its factual context, taking account of all its features and circumstances and the limitations of the communication medium, it omits material information that the average consumer needs, according to the context, to take an informed transactional decision and thereby causes or is likely to cause the average consumer to take a transactional decision that he would not have taken otherwise.[755]

If Google Search purports to offer its users a tool to find the best prices and places to buy, there is an expectation of competitiveness, lack of bias, and economic purpose on Google Shopping. In the case that there is an omission in the display of certain competitors in downstream markets, such as the ones found in the Google Shopping Case (see chapter 3, section 4), according to Directive 2005/29/EC, there may be unfair commercial practices involved in some cases, especially if the excluded competitors offer better products or services.

Even though **behavioral economics** is not at the top of legislators' and legal scholars' concerns when discussing online relations, it is worth considering its systematic relevance in this area. Throughout the previous chapters, supported by the work of scholars such as Shoshana Zuboff, I have emphasized that the business model concocted by Google revolutionized the field of internet applications precisely due to its extraction of behavioral surplus and subsequent acquired instrumentarian power. Behavioral economics is a critical matter in the analysis of algorithmic decision-making, and it must be taken into account in order to assess consumer relations and protect individual users from harm better. A consumer welfare analysis that goes beyond price is essential, especially in two-sided markets where one of the services is provided for free, which is the case with Google.[756]

> Pricing looks unusual in two-sided markets. Consumers pay to receive most newspapers, but not a Yellow Pages directory or an Internet search engine. Consumers do not pay per advertisement in their newspaper but must pay to use more video games with their game console. Many consumers are in effect paid to use a credit card with rewards programs such as contributions to frequent flyer plans.[757]

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[755] Article 7.1. Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005.
[756] According to Jean Tirole: "Economics is not in the service of private property and individual interest, nor does it serve those who would like to use the state to impose their own values or to ensure that their own interests prevail. It does not justify economies based entirely on the market nor economies wholly under state control. Economics works toward the common good; its goal is to make the world a better place. To that end, its task is to identify the institutions and policies that will promote the common good. In its pursuit of the well-being of the community, it incorporates both individual and collective dimensions. It analyzes situations in which individual interest is compatible with the quest for collective well-being, as well as those in which, by contrast, individual interest hinders that quest." Jean Tirole, *Economics for the Common Good*, trans. Steven Rendall (Princeton, N.J.: Princeton University Press, 2017), 5.
[757] Marc Rysman, "The Economics of Two-Sided Markets," *The Journal of Economic Perspectives* 23, no. 3 (Summer 2009): 129, http://www.jstor.org/stable/27740544.

The difficulties of determining prices in such markets highlight the central role of Google (and other seemingly gratuitous digital platforms) in intermediating transactions online, whether they be of nominal value or not, especially because the company is in a dominant market position, as explained in the previous chapter.[758] In fact, a "user's presence creates a benefit for the other side of the market, which can be monetized—thus, de facto, reducing the cost of serving this user. In some cases, one side of the market might not pay anything, or might even be subsidized, the other side paying for both."[759]

Overall, that means that greater market dominance (user presence on a digital platform in comparison to competitors') corresponds with greater possibilities for monetization, even if the money does not come from the end-users but the business users of the platform (who pay for advertising) or the ancillary services and products offered by the platform (vertical search, for example).[760] According to Jean Tirole,

> Users of Google benefit from its numerous free services (search engine, email, maps, YouTube, and so on). The presence of the users (along with the information obtained during searches, from sent emails, and through other activities on the Google platform, as well as the information collected by other websites and purchased from data brokers) attracts advertisers, who can present their wares on the platform in a targeted way. Advertisers pay very large sums for this privilege. This model is often replicated by platforms in other sectors.[761]

To a large extent, even seemingly gratuitous operations online may be considered as having a price, especially through the lenses of consumer law. In some of the business models of platforms such as those of Google and Facebook, monetization occurs, to a large extent, by means of targeted advertising presented to users who do not pay for using search engines, streaming, social networks, and other services. Even though nowadays there are subscription options (which remove advertising), in general, these are mainly considered free services, at

[758] "In particular, there is an ongoing debate in the EU and in the United States on the inadequacy of current regulatory frameworks for online platforms. The central challenge regarding these concerns is to identify dominant platforms and evaluate their possible welfare effects." Chiu Yu and Bo Shen, "Are Dominant Platforms Good for Consumers?" *Economic Inquiry* 59, no. 3 (July 2021): 1374, https://doi.org/10.1111/ecin.12966. See also: Andrei Hagiu, "Two-Sided Platforms: Product Variety and Pricing Structures," *Journal of Economics & Management Strategy* 18, no. 4 (Winter 2009): 1011-1043, https://doi.org/10.1111/j.1530-9134.2009.00236.x.

[759] Tirole, *Common Good*, 384.

[760] "Due to the two-sided nature of the activity and monetization on the consumer side of the market, the ISP internalizes the consumer surplus in its decision. Thus, potential negative impact of discrimination on the content side, if any, must be balanced with welfare benefits on the consumer side. The extent to which this ultimately benefits consumers depends on the demand elasticity in the monopoly case and, otherwise, on the intensity of competition between bottleneck ISPs competing for consumers." Bruno Jullien and Wilfried Sand-Zantman, "Internet Regulation, Two-Sided Pricing, and Sponsored Data," *International Journal of Industrial Organization* 58 (May 2018): 55, https://doi.org/10.1016/j.ijindorg.2018.02.007.

[761] Tirole, 384.

least nominally. In practice, nonetheless, these platforms are dependent on advertising to sustain their activities and the offer of "free" services. Therefore, there is an indirect cost to consumers, which is paid through their exposure to publicity. Directive 2019/770 on certain aspects concerning contracts for the supply of digital content and digital services supports this stance, since it defines its scope as the following:

> This Directive shall also apply where the trader supplies or undertakes to supply digital content or a digital service to the consumer, and the consumer provides or undertakes to provide personal data to the trader, except where the personal data provided by the consumer are exclusively processed by the trader for the purpose of supplying the digital content or digital service in accordance with this Directive or for allowing the trader to comply with legal requirements to which the trader is subject, and the trader does not process those data for any other purpose.[762]

The Directive, whose purpose is to contribute to the proper functioning of the internal market by laying down common rules on certain requirements concerning contracts between traders and consumers for the supply of digital content or digital services, precisely asserts that it applies to seemingly free services, where content is provided in exchange for consumer data.

Thus, this analysis is based on the fact that algorithmic decision-making can also cause harm to users in inconspicuously monetized settings, such as Google Search. If we assume that pricing is not always nominal and that there is an indirect onus placed on the consumer through the exposure to advertisements in exchange for free search services, it is possible to contend that the price of advertising on Google's search engine is also distributed amongst its end-users, even if they do not directly pay for it.

> The use value of the advertising space and the attention of potential buyers are the result of users' work expenditure, whose work has a concrete dimension—the specific information of each user—and an abstract dimension—the generic audience time, which serves as a measure of value. And, as this time is absolutely unpaid, the surplus value is extracted absolutely.[763]

[762] 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 (Text with EEA relevance), 2019, O.J. (L 136), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019L0770.

[763] My translation of: "O valor de uso do espaço publicitário e a atenção de prováveis compradores são frutos do dispêndio de trabalho dos usuários, cujo trabalho possui dimensão concreta - as informações específicas de cada usuário - e dimensão abstrata - o tempo de audiência genérica, que serve como medida de valor. E, como esse tempo é absolutamente não remunerado, a mais-valia é extraída de forma absoluta." Kenzo Soares Seto, "Acumulação capitalista por meios digitais: novas teorias da mais-valia e da espoliação do General Intellect," *Revista Eletrônica Internacional de Economia Política da Informação, da Comunicação e da Cultura* 22, no. 1 (jan/abril 2020): 149, https://seer.ufs.br/index.php/eptic/article/view/13044/10236.

Traditionally, the pricing of products and services is determined by supply and demand: the higher the supply, the lower the prices; the higher the demand, the higher the prices. This can be calculated by humans or by algorithms, which also determines the degree of complexity and the number of variables taken into consideration when determining prices. **Algorithmic pricing** allows for greater use of estimates, conditions, past data analysis, and market expectations in a manner that is more conducive to profit optimization (for the algorithm developers).[764]

Therefore, smart algorithmic pricing constantly adapts, rapidly reacts to competitors, and evolves according to their strategies. In this situation, practices of **algorithmic collusion** are becoming increasingly common.

> Collusion refers to the coordination of firms' competitive behaviour. The likely result of such coordination is that prices rise, output is restricted and the profits of the colluding companies are higher than they would otherwise be. Collusive behaviour does not always rely on the existence of explicit agreements between firms. Collusive behaviour can also result from situations where firms act individually but—in recognition of their interdependence with competitors—jointly exercise market power with the other colluding competitors. This is normally described as "tacit collusion."[765]

Collusion involves algorithmic pricing, which has direct consequences that inhibit competition. Collusion is not an innovation introduced by algorithms; it happened and still happens through human agency, but it has gained sophisticated contours in the digital environment. In this day and age, algorithmic evaluations echo the information extracted from the personal data of users.[766] Dominant applications make use of their gatekeeping advantage in order to imbue their pricing with their unique access to consumer data.

> In the absence of this competitive pressure from rivals, dominant firms may impose exploitative privacy terms on consumers. The data dynamics of online markets may in fact spur a "race to the bottom" in privacy quality as privacy-enhancing competition is not rewarded, while all suppliers are incentivised to degrade consumer data privacy in the interests of increased advertising revenue and other means of monetizing consumer data.[767]

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[764] Emilio Calvano et al., "Algorithmic Pricing What Implications for Competition Policy?" *Review of Industrial Organization* 55, no. 1 (2019): 158, https://doi.org/10.1007/s11151-019-09689-3. See also: Jean-Pierre I. van der Rest et al., "A Note on the Future of Personalized Pricing: Cause for Concern," *Journal of Revenue and Pricing Management* 19, no. 2 (2020): 113-118, https://doi.org/10.1057/s41272-020-00234-6.

[765] European Commission, *Glossary of Terms Used in EU Competition Policy: Antitrust and Control of Concentrations* (Luxembourg: Office for Official Publications of the European Communities, 2002), 9, https://op.europa.eu/en/publication-detail/-/publication/100e1bc8-cee3-4f65-9b30-e232ec3064d6#document-info.

[766] Llanos, "Close Look on Privacy Protection," 249.

[767] Katharine Kemp, "Concealed Data Practices and Competition Law: Why Privacy Matters," *European Competition Journal* 16, no. 2–3 (November 5, 2020): 662, https://doi.org/10.1080/17441056.2020.1839228.

In other words, if contextualized within the indirect pricing of consumers' attention by Google's system of monetizing their online (as well as offline) behavior through advertisement, it is clear that many of Google's practices can be detrimental to business users of its search platforms. In situations where there is an unfair preference for Google's secondary applications and business partners, competition is not really enforced.[768] Such considerations link privacy to consumer rights and competition standards. The entanglement of these areas may be ideal for didactic purposes but is challenging to put into practice (as this thesis demonstrates).

Unsurprisingly, privacy is increasingly becoming a feature of value in digital markets.[769] For example, recent disputes between technological giants such as Apple and Facebook have emphasized the stance of the former in claiming its products and services as privacy-friendly, unlike the latter.[770]

> Instead of increasingly using the current theoretical conception of privacy protection as a competition parameter, regulators and law enforcers should strive to understand and address the dichotomy between consumers' voiced preferences for privacy and their actual transactional decisions, as well as its underlying causes. Only when these market failures are significantly corrected can privacy protection be expected to emerge as a driver of consumer choice in data-driven markets.[771]

Privacy as a factor of consumer choice is still highly dependent on information and users' awareness regarding the applications they use. I believe that consumer choice through informed decisions is a critical factor towards a right to explanation, but it is not sufficient. "While competition law aims to ensure the availability of choice, data protection and consumer protection law should empower individuals to effectively exercise such a choice."[772] Likewise, "stronger enforcement of the consumer protection laws is required to

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[768] "Left unrestrained, it is not hard to see Google leading us into a world where maps, travel, video, shopping, and possibly even news are all found primarily through the 'universal' networks of the major search providers." Hazan, "Stop Being Evil," 817.

[769] Nicholas Economides and Ioannis Lianos, "Antitrust and Restrictions on Privacy in the Digital Economy," *Concurrences* 3 (September 2020), https://www.concurrences.com/en/review/issues/no-3-2020/articles/antitrust-and-restrictions-on-privacy-in-the-digital-economy-en. See also: Trautman, "How Google Perceives," 36-37.

[770] "The company's announcement included comments from privacy advocates who lauded the upcoming update, which will essentially crack down on the ability of apps to track users' data." Catherine Thorbecke, "Apple's Latest Privacy Update Faces Heat from Facebook," ABC News, January 28, 2021, https://abcnews.go.com/Business/apples-latest-privacy-update-faces-heat-facebook/story?id=75538276.

[771] Llanos, "Close Look on Privacy Protection," 251.

[772] Inge Graef, "Blurring Boundaries of Consumer Welfare: How to Create Synergies Between Competition, Consumer and Data Protection Law in Digital Markets," in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 132, https://doi.org/10.1007/978-3-662-57646-5.

improve consumer choice and thereby promote competition,"[773] which, thus, is a piece of the solution to algorithmic opacity.

4 A Matter of Fundamental Rights

News, information, and the appropriation of technology for informational purposes provide a powerful significance to search engines in the 21st century. The large scale of their ubiquity and the scope of the information they index can be characterized as a means to social and political change, with positive and negative outcomes. "Technologies are far from neutral, but neither do they inherently support either freedom or oppression. The same technologies, as we have already seen, can be used both to monitor and oppress a group of people and to connect them in powerful ways."[774]

As an example of potential oppression perpetrated by means of these tools, a search engine can be misappropriated in order to inform authorities of individual users' queries, either because they threaten the interests of the government or because there is reasonable suspicion that these tools are being used to commit illicit deeds. This is one of the supposed reasons why Google decided to withdraw from the Chinese market.[775] Such alternative surveillance purposes can hinder users' freedom of speech and right to access certain information online. Users feel more insecure not just about posting controversial content online, but also having their search interests revealed to repressive and investigative authorities, no matter how harmless and legitimate such interests may be.[776]

As controversial as Google's presence in China may have been, it is a clear example of how the internet and its major applications can face substantial challenges from traditional forms of exercising power. Google's search engine had a specific version of its platform for the Chinese market, attending to the Chinese government's needs to censor certain web searches and breach information through its operators within the People's Republic of

[773] Llanos, "Close Look on Privacy Protection," 246.
[774] Vaidhyanathan, *Googlization of Everything*, 123.
[775] Bang Xiao, "Google Pulled Its Service from China More Than a Decade Ago – Can Australia Learn from That?, *ABC News*, January 29, 2021, https://www.abc.net.au/news/2021-01-30/google-leave-australia-what-to-learn-from-china-legislation-law/13102112.
[776] Oreste Pollicino, "Judicial Protection of Fundamental Rights in the Transition from the World of Atoms to the Word of Bits: The Case of Freedom of Speech," *European Law Journal* 25, no. 2 (March 2019): 155-168, https://doi.org/10.1111/eulj.12311.

China.[777] Google's decision to leave the country in 2010 was characterized by the company as a human rights stance in favor of freedom of speech and access to information, but also represented a considerable loss in terms of revenue and future market share for the company.[778]

One has to remember, however, that "Google is not a free-speech engine: it is an advertising company. It is also a publicly traded corporation with a duty to provide returns to its shareholders."[779] This means that its primary interests are related to increasing shareholder value, not necessarily standing up for fundamental rights worldwide. In fact, its stance towards fundamental rights is selective, since more often than not, privacy is relativized by the company in order to favor its business model, expand data collection, and ramp up monetization from data-fueled advertising.[780]

Authors such as Siva Vaidhyanathan will go so far as to assert that Google's actions are actually a detriment to its own stated goal of universalizing access to information, due to the fact that its profiling strategies cause many ruptures in contemporary society.[781] Instead of working towards a collective democratization of knowledge, Google becomes a gatekeeper of information according to its own interests and priorities.[782] Adopting "don't be evil" as one of the company's core principles has been interpreted in the past to indicate that Google's has a directive to do only good for society, which then translates into a set of activities, services, and deeds that contribute to the common good of the company but not necessarily that of the end-users. After years of expansion and shareholders' pressure to monetize search and increase revenue through advertising, as explained in chapter 1, the company dropped its "don't be evil" motto and effectively transformed its business model into one focused on the extraction of behavioral surplus. This transformation set the grounds for other Silicon Valley ventures, such as Facebook. Shoshana Zuboff describes this transition as a power dynamic in

[777] According to Professor Siva Vaidhyanathan: "Human rights and free-speech advocates had argued for years that in its relations with the Chinese government, Google was rendering itself a part of that government's structures of oppression." Vaidhyanathan, *Googlization of Everything*, 120.
[778] Trautman, "How Google Perceives," 54.
[779] Vaidhyanathan, 130.
[780] "[W]e should realize that Google is not what it used to be. In recent years, the company has made several major shifts in emphasis and practice. In general, where once Google specialized in delivering information to satiate curiosity, now it does so to facilitate consumption." Vaidhyanathan, 201.
[781] Vaidhyanathan, 139.
[782] According to Professor Siva Vaidhyanathan: "Google appeared to offer uniformity and consistency of experience in the use of the Web, lending weight to the notion that technology could unite and connect people everywhere. [. . .] But, as we have seen, recent moves to localize and customize search results have undermined that potential. And we now understand that the very nature of Google's search algorithms privilege highly organized, technologically savvy groups over others. Google in fact disrupts the prospects of building a global public sphere." Vaidhyanathan, 147.

which information asymmetries always favor big tech behemoths, as the owners of massive amounts of personal data over its users, whether they be individuals or businesses.

> On the strength of its unprecedented concentrations of knowledge and power, surveillance capitalism achieves dominance over *the division of learning in society*—the axial principle of social order in an information civilization. This development is all the more dangerous because it is unprecedented.[783]

This **instrumentarian power** held by surveillance capitalists creates a singular opportunity to isolate, divide, subdue, and conquer. Individuals are subjected to curated information according to Google's best interests, regardless of explanation and minimum transparency standards.[784] Businesses that wish to be included in Google's search application, and consequently, to "exist" in a digital space predominantly commanded by the company, need to adhere to its terms of use. Businesses that wish to compete with Google applications are given unfair playing conditions, bought, or simply copied, a strategy that has been mimicked by surveillance capitalism congeners, like Facebook.[785]

"Google helped pioneer a world where internet users don't need to know exactly what they are searching for before they search,"[786] which is a sense of technological neutrality extremely valuable to its market value. It reduces friction for users and corroborates the search engine authority among consumers. Of course this has to be understood under the framework that Google Search's very own business model relies on the fact that the user is not always aware as to what is relevant to them. Google's scale, data processing capabilities, and long-lasting high performance in the market helped the platform to perfect its results in order to facilitate the endeavor of the user, to make it seem effortless.

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[783] Zuboff, *Age of Surveillance Capitalism*, 180.
[784] "[T]he decisions at the Googleplex are made behind closed doors [. . .] / The power to include, exclude, and rank is the power to ensure which public impressions become permanent and which remain fleeting [. . .] / Despite their claims of objectivity and neutrality, they are constantly making value-laden, controversial decisions. They help create the world they claim to merely 'show' us." Pasquale, *Black Box Society*, 60-61. See also: Wanda Presthus and Hanne Sørum, "Consumer Perspectives on Information Privacy Following the Implementation of the GDPR," *International Journal of Information Systems and Project Management* 7, no.3 (2019): 19–34, https://doi.org/10.12821/ijispm070302; Heike Felzmann et al., "Transparency You Can Trust: Transparency Requirements for Artificial Intelligence between Legal Norms and Contextual Concerns," *Big Data & Society* 6, no. 1 (January 2019): 8-9, https://doi.org/10.1177/2053951719860542; Also: "Providers of cloud services such as Google wield an increasing amount of power, and there are a number of ways they can exercise that power, by employing both technological and legal means." Andrew Katz A, "Google, APIs and the Law: Use, Reuse and Lock-In," in Aurelio Lopez-Tarruella, ed., *Google and the Law: Empirical Approaches to Legal Aspects of Knowledge-Economy Business Models* (Den Haag: T.M.C. Asser Press, 2012), 301.
[785] Alex Heath, "Here Are All the Times Facebook Has Copied Snapchat So Far," *Business Insider*, May 27, 2017, https://www.businessinsider.com/all-the-times-facebook-copied-snapchat-2017-5?op=1.
[786] Hazan, "Stop Being Evil," 792.

Personalization, despite favoring relevant content and targeted ads, reinforces a cycle of predilection for certain topics of interest, creating an informational filter bubble around the user. These intermediaries of personalization also damage creativity and innovation, which are dependent on the exposure to different content, ideas, and worldviews to thrive.[787] If all (or most of what) users see when performing a query are results that already confirm and corroborate their biases and predispositions, they are less prone to make new intellectual connections and be exposed to antagonistic perspectives, which are essential to shaping their personal development.

> The filter bubble tends to dramatically amplify confirmation bias—in a way, it's designed to. Consuming information that conforms to our ideas of the world is easy and pleasurable; consuming information that challenges us to think in ways or question our assumptions is frustrating and difficult.[788]

Google maintains an immense concentration of online knowledge both from its competitors and its users. These asymmetries are described by Zuboff as an unauthorized privatization of the division of learning in society,[789] which concurs with the thesis that private interests are currently driving several aspects of our society.[790] The researcher wonders "who knows, who decides, and who decides who decides"[791] nowadays in the digital economy. According to her, "as things currently stand, it is the surveillance capitalist corporations that *know.* It is the market form that *decides*. It is the competitive struggle among surveillance capitalists that *decides who decides*."[792]

Google's presence in our daily lives is so pervasive and use of its applications has become second nature for so many to such an extent that even challenging it in academia and scientific discourse creates an initial obstacle with lay audiences when trying to raise awareness regarding dependency, trustworthiness, and manipulation.[793] The fact that Google

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[787] Pariser, *Filter Bubble*, 83.
[788] Pariser, 88.
[789] According to Shoshana Zuboff , "the commodification of behavior under the conditions of surveillance capitalism pivots us toward a societal future in which an exclusive division of learning is protected by secrecy, indecipherability, and expertise. Even when knowledge derived from your behavior is fed back to you in the first text as a quid pro quo for participation, the parallel secret operations of the shadow text capture surplus for crafting into prediction products destined for other marketplaces that are about you rather than for you." Zuboff, *Age of Surveillance Capitalism*, 309.
[790] Zuboff, 192. For more regarding information asymmetries, see: Llanos, "Close Look on Privacy Protection," 232. See also: Economides and Lianos, "Antitrust and Restrictions," 7.
[791] Zuboff, 309.
[792] Zuboff, 192.
[793] According to Scott Galloway: "We don't know how the Google algorithm works - but trust it to the point of betting our careers, even lives, on its answers. Google has become the nerve center of our prosthetic brain. It dominates the knowledge industry the way Walmart and Amazon, respectively, rule offline and online retail. And it certainly doesn't hurt that when Google reaches into our pockets, it's mostly for pennies, nickels and

services are generally offered for free to users does not help this situation, since its users are then even less prone to challenge it. Therefore, even before the difficult task of algorithmic explainability and scrutiny, there exists an underlying hurdle related to this perception of the platform's power and its potential adverse consequences to society.

> If Google is the dominant way we navigate the Internet, and thus the primary lens through which we experience both the local and the global, then it has remarkable power to set agendas and alter perceptions. Its biases (valuing popularity over accuracy, established sites over new, and rough rankings over more fluid or multidimensional models of presentation) are built into its algorithms. And those biases affect how we value things, perceive things, and navigate the worlds of culture and ideas. In other words, we are folding the interface and structures of Google into our very perceptions.[794]

This leads us to a discussion that not only encompasses intangible business assets, data protection, and competition, analyzed in previous chapters, but also fundamental rights. If the users' perception of the world is intermediated by Google, through its gatekeeping and instrumentarian capabilities, fundamental rights such as freedom of expression and information, the protection of privacy and personal data, and non-discrimination ought to be analyzed, respectively, in the light of Articles 11, 7, 8, and 21 of the Charter of Fundamental Rights of the European Union.[795]

Conversely, a possible right to property claimed by businesses such as Google, as protected by Article 17 of the same charter, in addition to its freedom to conduct business, as protected by Article 16, and a possible extension of the company's right to privacy encompassing its trade secrets, must be taken into consideration.

With regard to users rights, the charter states the following:

> Article 7: Everyone has the right to respect for his or her **private and family life, home and communications**.
>
> Article 8: 1. Everyone has the right to the **protection of personal data** concerning him or her. 2. Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified.
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> [. . .]

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dimes. It's the antithesis of a luxury company ─ it's available to everyone, anywhere, whether they are rich or poor, genius or slow." Scott Galloway, *The Four: The Hidden DNA of Amazon, Apple, Facebook and Google* (London: Penguin Random House, 2017), 176.

[794] Vaidhyanathan, *Googlization of Everything*, 7.

[795] Charter of Fundamental Rights of the European Union, 2012, O.J. 2012/C 326/02, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12012P/TXT&from=EN#d1e364-393-1.

> Article 11: 1. Everyone has the **right to freedom of expression**. This right shall include freedom to **hold opinions and to receive and impart information and ideas without interference** by public authority and regardless of frontiers.
>
> [. . .]
>
> Article 21: 1. Any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited.[796]

Concerning the right to access information from the data subject's standpoint, there are two perspectives that need to be taken into account: the access to information online, as recognized by Article 11 of the Charter of Fundamental Rights of the European Union;[797] and the right to access information relating to processing data "in a concise, transparent, intelligible and easily accessible form, using clear and plain language," as has been established in Article 12 of the GDPR.[798] Though seemingly different in terms of context, these provisions are linked through the purpose of reducing knowledge asymmetries in favor of individuals.

Article 12 of the GDPR is also related to consumer rights, because it specifically requires transparency, intelligibility, and accessibility of form and language, since "the wording of the new regulation echoes typical consumer protection clauses."[799] This is deemed as the first layer of transparency, according to a systematic interpretation of the GDPR. Individual information and access rights for data subjects provide a better understanding of how an automated decision is made, the logic behind the algorithm used in decision making, and the anticipated consequences of the decision.[800] Users with more information are able to make informed choices. More information also contributes to inspiring more confidence in the products and services offered.

The GDPR endorses an approach to data protection grounded in fundamental rights. For one thing, Article 25 champions data protection by design and by default, specifying that technical and organizational measures ought to consider "the risks of varying likelihood and

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[796] Charter of Fundamental Rights of the European Union, 2012 (my boldface).
[797] Article 11. Charter of Fundamental Rights of the European Union, 2012.
[798] Article 12. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016.
[799] Helena Ursic, "The Failure of Control Rights in the Big Data Era: Does a Holistic Approach Offer a Solution?" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 73, https://doi.org/10.1007/978-3-662-57646-5. See also: Felzmann et al., "Transparency You Can Trust," 7.
[800] Emre Bayamlıoğlu, "The Right to Contest Automated Decisions under the General Data Protection Regulation: Beyond the So−called 'Right to Explanation'," *Regulation & Governance* (March 14, 2021): 8-9, https://doi.org/10.1111/rego.12391.

severity for rights and freedoms of natural persons posed by the processing."[801] For another thing, Article 35 preconizes that a Data Protection Impact Assessment (DPIA) has to contemplate "the risks to the rights and freedoms of data subjects."[802]

Privacy and the proper protection of personal data have an enabling function for other fundamental rights. It allows for personal autonomy, individual choice, and freedom, since surveillance has a chilling effect on users' activities online, most noticeably, freedom of speech and social network participation.[803] If an end-user is aware of which kinds of personal information are subject to scrutiny and which kinds are not, she can make more informed choices regarding which platforms to use, what to search for, what to buy, and what to post online.

Additionally, an overreach of surveillance (either private or governmental) would have chilling effects on the freedoms and rights guaranteed by Articles 7, 8, and 11 of the Charter. Freedom of expression can be compromised by the deletion (or de-indexation) of lawful content. The right to gather information can be hurt by excessive and improper use of personal data.

When personal data is subject to collection and processing under minimum protection standards, even if we assume that not all consumer choices are rational and informed, regulated markets preserve freedoms and competition patterns envisaged by legislators. If fundamental rights are at the core of regulation authorities' reasoning, it is possible to increase data subjects' control and agency over data processing.[804]

> EU data protection law is capable of serving as a proxy for the protection of other individual fundamental rights and freedoms, especially where it provides for

[801] Article 25. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016. See also: Bayamlıoğlu, "Right to Contest Automated Decisions," 15.
[802] Article 35. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016. See also: Heleen L. Janssen, "An Approach for a Fundamental Rights Impact Assessment to Automated Decision-Making," *International Data Privacy Law* 10, no.1 (February 1, 2020): 87, https://doi.org/10.1093/idpl/ipz028.
[803] Manon Oostveen and Kristina Irion, "The Golden Age of Personal Data: How to Regulate an Enabling Fundamental Right?" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 12-13, https://doi.org/10.1007/978-3-662-57646-5; Moritz Büchi et al., "The Chilling Effects of Algorithmic Profiling: Mapping the Issues," *Computer Law & Security Review* 36 (April 2020): 4, https://doi.org/10.1016/j.clsr.2019.105367; Anne-Lise Sibony and Alberto Alemano, "Epilogue: The Legitimacy and Practicability of EU Behavioural Policy-Making," in *Nudge and the Law: A European Perspective*, ed. Alberto Alemanno and Anne-Lise Sibony, Modern Studies in European Law (Oxford: Hart Publishing, 2015), 326-327, http://hdl.handle.net/2078.1/163136.
[804] Janssen, "An Approach for a Fundamental Rights Impact Assessment," 101.

> appropriate default situations for the handling of personal data, such as requiring a legal basis and a specific purpose or granting rights to data subjects.[805]

Therefore, transparency is a feature of explanation and a base layer for the exercise of other fundamental rights. In the digital realm, users cannot contest what they do not understand, which highlights the importance of a right to explanation.[806] And "the strength of identifying something as a right is that I as an individual can object that even if the system is better overall, in fact my rights are being violated, so we're going to have to redesign the system to make it fair." [807]

This is clearly the approach of the CJEU in Bastei Lübbe (C-149/17) and Coty Germany (C-580/13), cases in which secrecy and fundamental rights are put to the test in different contexts.

In Bastei Lübbe GmbH & Co. KG v. Michael Strotzer, for example, the fundamental right to the protection of family life was put into question by intellectual property rights. Bastei Lübbe was a phonogram producer, owner of the copyright in question, and related rights to the audio version of a book. Mr. Strotzer was the owner of an internet connection through which, on May 8th, 2010, the audio book was shared, for the purpose of downloading, with an unlimited number of users of a peer-to-peer internet exchange. An expert correctly attributed the IP address in question to Mr. Strotzer, who denied any wrongdoing by him and his parents, who shared his internet connection.[808]

The decision aimed to strike a fair balance between the right to effective judicial protection, the right to intellectual property, and the right to respect for the private and family life of the alleged offender. Though not in an absolute sense, the court decided that the right to respect for family life cannot be interpreted in a way that deprives holders of intellectual property rights of a real possibility to protect such rights,[809] even though privacy rights within

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[805] Oostveen and Irion, "Golden Age of Personal Data," 23-24.

[806] "[T]he substance of other underlying legal rights often determines transparency's substance. If one has a right of correction, one needs to see errors. If one has a right against discrimination, one needs to see what factors are used in a decision. Otherwise, information asymmetries render underlying rights effectively void." Margot E. Kaminski, "The Right to Explanation, Explained," *Berkeley Technology Law Journal* 34, no. 1 (May 2019): 213, https://doi.org/10.15779/Z38TD9N83H. See also: Felzmann et al., "Transparency You Can Trust," 8-9.

[807] Kate Vredenburgh, "HAI Fellow Kate Vredenburgh: The Right to an Explanation," interview by Katharine Miller, *Stanford HAI*, June 24, 2020, https://hai.stanford.edu/blog/hai-fellow-kate-vredenburgh-right-explanation.

[808] Case C-149/17, Bastei Lübbe GmbH & Co. KG v. Michael Strotzer, CJEU 2017, Judgement, §§ 12, 13 (October 18, 2018).

[809] Case C-149/17, Bastei Lübbe GmbH & Co. KG v. Michael Strotzer, CJEU 2017, Judgement (October 18, 2018). "[I]f a family member of that owner had access to that connection, the owner may, having regard for the fundamental right to the protection of family life, escape liability merely by naming a family member without being required to provide further details as to when and how the internet was used by that family member. [. . .] In that regard, the national legislation at issue in the main proceedings provides that, where the injured party

the family realm are protected under Article 7 of the Charter of Fundamental Rights of the European Union.[810]

According to German Law, the owner of the internet connection could not be held liable if he could prove that someone else from his family had access to that connection. But the CJEU decided that "the right to respect for family life, recognised in Article 7 of the Charter of Fundamental Rights of the European Union, cannot be interpreted in such a way as to deprive rightholders of any real possibility of protecting their right to intellectual property enshrined in Article 17.2 of the Charter of Fundamental Rights."[811] Therefore, the court determined that, despite personal information being confidential, someone should be held liable for the illegal sharing of intellectual property.

In the Coty Germany GmbH v. Stadtsparkasse Magdeburg case, banking secrecy was put at odds with intellectual property rights.[812] Coty Germany, which produces and distributes perfumes and holds an exclusive license for the community trademark Davidoff Hot Water, became aware of an online auction in which a counterfeited bottle of a perfume bearing the trademark Davidoff Hot Water was sold on an internet auction platform. In order to exercise its right to judicially pursue the actual seller of the product, Coty Germany requested its banking information (name and address of the account holder), which was refused under banking secrecy claims.[813]

The CJEU had to weigh the right to information (in this case, Coty's, regarding the account holder) against the right to an effective remedy, and the right to protection of personal data (of the account holder). Here, banking secrecy was preventing a claimant from pursuing his (intellectual property) rights against an alleged offender in German courts. However, when it went to the CJEU, although this court recognized that the right to protection of personal banking data is part of the fundamental right of every person to the

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brings an action, the owner of an internet connection, correctly identified as having infringed copyright, is not required to provide, according to the conditions set out in paragraph 36 above, evidence related to that infringement which lies in his control." Case C-149/17, Bastei Lübbe GmbH & Co. KG v. Michael Strotzer, CJEU 2017, Judgement, §§ 36, 38 (October 18, 2018).

[810] "Respect for private and family life – Everyone has the right to respect for his or her private and family life, home and communications." Article 7. Charter of Fundamental Rights of the European Union, 2012.

[811] Case C-149/17, Bastei Lübbe GmbH & Co. KG v. Michael Strotzer, CJEU 2017, Judgement, § 47 (October 18, 2018).

[812] Case C-580/13, Coty Germany GmbH v. Stadtsparkasse Magdeburg CJEU 2014, Judgement (July 16, 2015).

[813] "The Court of Justice of the European Union (CJEU) has ruled that a national provision that allows a bank to rely unconditionally on banking secrecy to refuse to give to a claimant in legal proceedings for the enforcement of intellectual property (IP) rights information about the identity of an account holder, who allegedly sold counterfeit products, infringes the right to information awarded to the claimant by Article 8 of Directive 2004/48." Michele Giannino, "*Coty Germany*: When Intellectual Property Rights Enforcement Prevails over Banking Secrecy," *Journal of Intellectual Property Law & Practice* 10, no. 11 (November 2015): 822, https://doi.org/10.1093/jiplp/jpv164.

protection of personal data concerning them, it also determined that secrecy here would, in fact, infringe the fundamental right to an effective remedy and the fundamental right to intellectual property of the other party involved, and, in this particular case, secrecy should not be absolutely protected and could be lifted.[814] "These provisions, if taken in isolation, allowed an unlimited refusal to provide the information in Article 8 of Directive 2004/48. As a result, banks could rely on banking secrecy in an unlimited and unconditional way, thereby impeding national judges from effectively ordering banks to disclose information requested."[815] This case emphasizes the necessary requirement to ensure a fair balance between the various fundamental rights involved in a case when applying EU law.[816]

While the ruling in the Coty Germany case states that, as a matter of law, the protection provided to secrecy can be limited when it conflicts with others' rights in the framework of a fair balance analysis, Bastei Lübbe reaffirms that, where secrecy cannot be lifted, someone should be deemed liable for the damages. An analysis of the Coty Germany case applied to Google Search thus supports some sort of a right to explanation as a matter of principle in cases where it is truly possible to obtain reliable information from the platform on the performance of its algorithm, while an interpretation of the Bastei Lübbe case could provide a liability regime for cases of false or incomplete disclosure of information, which would amount to making the right to explanation effective.

Furthermore, both the Coty and Bastei Lübbe cases highlight the importance of a fundamental right to an effective remedy in order to ensure access to justice.[817] If some fundamental rights are considered in their absolute form to favor one party or another, their adversaries in judicial claims may be hindered entirely from having a fair trial and even from having access to the information needed to prove their claims.[818]

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[814] Case C-580/13, Coty Germany GmbH v. Stadtsparkasse Magdeburg CJEU 2014, Judgement, §§ 38-41 (July 16, 2015).
[815] Giannino, "*Coty Germany*," 823.
[816] "Despite the ever growing importance of effective data protection rights in today's digital economy, and the urgent need to prevent unauthorised disclosures of personal data, the right to privacy and data protection is not absolute. Provided that the fundamental principles of adequacy, proportionality and purpose limitation are respected, the disclosure of personal data in intellectual property infringement cases, can be justified by the principle of the overriding interest of intellectual property owners' rights." Stephanie De Smedt, "Data Protection May Have to Yield in IP Infringement Cases," *European Data Protection Law Review* 1, no. 4 (2015): 320, https://doi.org/10.21552/EDPL/2015/4/14.
[817] "Right to an effective remedy and to a fair trial - Everyone whose rights and freedoms guaranteed by the law of the Union are violated has the right to an effective remedy before a tribunal in compliance with the conditions laid down in this Article." Article 47. Charter of Fundamental Rights of the European Union, 2012.
[818] See: Knud Wallberg, "Notice and Takedown of Counterfeit Goods in the Digital Single Market: A Balancing of Fundamental Rights," *Journal of Intellectual Property Law & Practice* 12, no. 11 (November 2017): 929, https://doi.org/10.1093/jiplp/jpx111; Mmiselo Freedom Qumba, "Balancing International Financial Institutions' Immunity with Private Individuals' Right to Effective Remedy," *South African Journal of International Affairs* 27, no. 1 (2020): 107-108, https://doi.org/10.1080/10220461.2020.1729853; Elias Mossialos and Julia Lear,

In addition to users' rights, it is also necessary to examine the proprietary rights related to algorithms. Companies that develop algorithmic trade secrets, such as Google's, have proprietary rights over these intangible assets. Unlike intellectual property rights, which are protected by Article 17.2 of the Charter of Fundamental Rights of the European Union[819] and enjoy special procedural rights (presumption of truth, exclusivity rights, and inversion of the burden of proof), trade secrets stem from competition law, companies' privacy rights, and their freedom to conduct businesses.[820]

In the European Union, "historically, the common view was that trade secrets did not deserve the same level of protection as other intellectual property rights."[821] Also, the implementation of trade secrets throughout EU state members has depended on each jurisdiction.[822] As shown in chapter 1, algorithmic trade secrets do not enjoy intellectual property status in the European Union—and, consequently, protection under Article 17(2) of the Charter of Fundamental Rights of the European Union.[823]

"Balancing Economic Freedom Against Social Policy Principles: EC Competition Law and National Health Systems," *Health Policy* 106, no. 2 (July 2012): 129, https://doi.org/10.1016/j.healthpol.2012.03.008; Björg Thorarensen, "The Processing of Health Information: Protecting the Individual Right to Privacy Through Effective Legal Remedies," *Health and Technology* **7,** no. 2 (March 2017): 407-408, https://link.springer.com/article/10.1007/s12553-017-0184-4.

[819] "Intellectual property shall be protected." Article 17.2. Charter of Fundamental Rights of the European Union, 2012.

[820] "The freedom to conduct a business in accordance with Union law and national laws and practices is recognised." Article 16. Charter of Fundamental Rights of the European Union, 2012.

[821] Shreya Desai, "Shhh – It's a Secret: A Comparison of the United States Defend Trade Secrets Act and European Union Trade Secrets Directive," *Georgia Journal of International and Comparative Law* 46, no. 2 (2018): 487, https://digitalcommons.law.uga.edu/gjicl/vol46/iss2/7/. Also: "[T]he fact that the concept of 'intellectual property' is deployed in different environments and for disparate purposes in addition to its relatively novel status, means that it lacks a particular, standardised or well-understood meaning – it lacks potency. The term must be read in context both to understand what is referred to and what consequences should flow from any given reference to 'intellectual property'." Lionel Bently and Jonathan Griffiths, "Trade Secrets: 'Intellectual Property' but Not 'Property'?" in Helena Howe and Jonathan Griffiths, ed., *Concepts of Property in Intellectual Property Law*, Cambridge Intellectual Property and Information Law (Cambridge: Cambridge University Press, 2013), 91.

[822] "[V]arious jurisdictions refer to trade secrets using different terms including: know-how, confidential information, or business secret. There is little agreement as to the meanings of each of these terms, which can create confusion as to what qualifies as a trade secret. Further, different countries may deem the theft of trade secrets as a civil or criminal offense or both." Desai, "Shhh – It's a Secret," 487.

[823] "Right to property - 1. Everyone has the right to own, use, dispose of and bequeath his or her lawfully acquired possessions. No one may be deprived of his or her possessions, except in the public interest and in the cases and under the conditions provided for by law, subject to fair compensation being paid in good time for their loss. The use of property may be regulated by law in so far as is necessary for the general interest. / 2. Intellectual property shall be protected." Article 17. Charter of Fundamental Rights of the European Union, 2012. Also: "[W]hilst the rights under the Directive are similar to IP rights, trade secrets are not considered intellectual property rights since EU legislators wished to avoid triggering provisions of other EU laws relating to traditional intellectual property rights, such as pre-litigation evidence collection under the IP Enforcement Directive (2004/48/ EC) and border measures under the EU Customs Enforcement Regulation (No. 1383/2003)." Rembert Niebel, Lorenzo de Martinis, and Birgit Clark, "The EU Trade Secrets Directive: All Change for Trade Secret Protection in Europe?" *Journal of Intellectual Property Law & Practice* 13, no. 6 (June 2018) 447, https://doi.org/10.1093/jiplp/jpx227. See also: Davide Arcidiacono, "The Trade Secrets Directive in the International Legal Framework," *European Papers* 1, no. 3 (2016): 1085,

According to Martin Husovec, "It is not self-evident that they constitute a form of 'intellectual property.' Their treatment in the case-law is mixed at best."[824] In 2012, the ECJ hinted at the idea that "the protection of business secrets is a general principle of European Union law,"[825] but it did not qualify them as a category of intellectual property per se. Furthermore, the court mentioned general proprietary rights in article 17 of the Charter of Fundamental Rights of the European Union without mentioning the status of trade secrets as an intellectual property right under article 17.2.[826]

An even more limited stance on trade secrets is supported by Lionel Bently, who argues that even the TRIPS Agreement has avoided attributing proprietary language to confidential information "referring not to 'owners' but to persons having information 'lawfully within their control,' and conferring not 'rights' but merely 'the possibility of preventing' that information from being disclosed to, acquired by or used by others."[827]

> Natural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information: (a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question; (b) has commercial value because it is secret; and (c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.[828]

Other institutions have followed suit, not only avoiding the characterization of trade secrets as intellectual property, but also focusing on the core elements of IP, such as exclusive rights and legitimate disclosure.[829] While current intellectual property categories enjoy

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https://www.europeanpapers.eu/en/system/files/pdf_version/EP_EF_2016_I_038_Davide_Arcidiacono_00083.pdf; Martin Husovec, "The Essence of Intellectual Property Rights under Article 17(2) of the EU Charter," *German Law Journal* 20, no. 6 (September 2019): 841, https://doi.org/10.1017/glj.2019.65.

[824] Husovec, "Essence of Intellectual Property Rights," 849. See also: Bently and Griffiths, "'Intellectual Property' but Not 'Property'?" 60-93.

[825] Case C-1/11, Interseroh Scrap and Metals Trading GmbH v. Sonderabfall-Management-Gesellschaft Rheinland-Pfalz mbH (SAM), ECJ 2011, Judgement §43 (March 29, 2012).

[826] "Right to property 1. Everyone has the right to own, use, dispose of and bequeath his or her lawfully acquired possessions. No one may be deprived of his or her possessions, except in the public interest and in the cases and under the conditions provided for by law, subject to fair compensation being paid in good time for their loss. The use of property may be regulated by law in so far as is necessary for the general interest. 2. Intellectual property shall be protected." Article 17. Charter of Fundamental Rights of the European Union, 2012.

[827] Bently and Griffiths, 91.

[828] Article 39.2. Agreement on Trade-Related Aspects of Intellectual Property Rights as Amended by the 2005 Protocol Amending the TRIPS Agreement, April 15, 1994, WTO, https://www.wto.org/english/docs_e/legal_e/trips_e.htm#art7.

[829] Even the European Commission's Frequently Asked Questions' section explicitly does not characterize trade secrets as an intellectual property right: "Are trade secrets an intellectual property right? No. The holder of a trade secret does not have an exclusive right over its creation. He cannot prevent competitors from copying and using the same solutions – reverse engineering (the process of discovering the technological principles of a

protection as fundamental rights in the European Union, trade secrets do not hold the same legal status and are thus more susceptible to right to explanation approaches.

Regardless, if need be—that is, if trade secrets were by some means given the same status as intellectual property rights, though I do not support this characterization— fair balancing exercises in real-world cases would determine what prevails: the fundamental rights of data subjects, such as their rights to data protection, freedom of speech, and access to information; or the intellectual property fundamental right through Article 17(2).

In addition to Article 17(2), some authors connect trade secrets to related fundamental rights in the same Charter, such as the freedom to conduct business,[830] or even the right to privacy of the company.[831] These theoretical stances in favor of a right to privacy for legal persons are far from being generally accepted, face many restrictions, and have yet to be applied as a general rule in the Court of Justice of the European Union, especially when they conflict with the fundamental rights of individuals.[832]

Balancing these rights also would also have to take into account the legitimate expectations of data subjects exposed to automated decisions such as those made by algorithms.[833] According to article 52.1 of the Charter of Fundamental Rights of the European Union, the exercise of fundamental rights can be limited only by law, and such limitations must be subject to the principle of proportionality when imposed.[834] In order to implement

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device, object or system through analysis of its structure, function and operation) is entirely lawful. Trade secrets are only legally protected in instances where someone has obtained the confidential information by illegitimate means (e.g. through spying, theft or bribery)." "FAQ: Protection Against the Unlawful Acquisition of Undisclosed Know-How and Business Information (Trade Secrets)," European Commission, accessed September 20, 2021, Internal Market, Industry, Entrepreneurship and SMEs, https://ec.europa.eu/growth/industry/policy/intellectual-property/trade-secrets/faq_en.

[830] "Freedom to conduct a business: The freedom to conduct a business in accordance with Union law and national laws and practices is recognised." Article 16. Charter of Fundamental Rights of the European Union, 2012.

[831] "Respect for private and family life: Everyone has the right to respect for his or her private and family life, home and communications." Article 7. Charter of Fundamental Rights of the European Union, 2012.

[832] Husovec, "Essence of Intellectual Property Rights," 849-850. See also: Valentin M. Pfisterer, "The Right to Privacy—A Fundamental Right in Search of Its Identity: Uncovering the CJEU's Flawed Concept of the Right to Privacy," *German Law Journal* 20, no. 5 (2019): 728-729, https://www.cambridge.org/core/journals/german-law-journal/article/right-to-privacya-fundamental-right-in-search-of-its-identity-uncovering-the-cjeus-flawed-concept-of-the-right-to-privacy/412B4D05F6D91C60735234124BA5FA4B; Bart van der Sloot, "Do Privacy and Data Protection Rules Apply to Legal Persons and Should They?: A Proposal for a Two-Tiered System," *Computer Law & Security Review* 31, no. 1 (February 2015): 26-45, https://doi.org/10.1016/j.clsr.2014.11.002.

[833] "Controllers should thus take due account of the rights and reasonable expectations of data subjects, and should not relentlessly and unobtrusively override them to serve their business model." Janssen, "An Approach for a Fundamental Rights Impact Assessment," 100.

[834] "Scope and interpretation of rights and principles 1. Any limitation on the exercise of the rights and freedoms recognised by this Charter must be provided for by law and respect the essence of those rights and freedoms. Subject to the principle of proportionality, limitations may be made only if they are necessary and genuinely meet objectives of general interest recognised by the Union or the need to protect the rights and freedoms of others." Article 52. Charter of Fundamental Rights of the European Union, 2012. Also: "The proportionality test

EU law, therefore, it is necessary to reconcile different fundamental rights, which at times are conflicting, such as the proprietary rights of intellectual assets and the rights of users. In several cases, when pondering such rights, the Court of Justice of the European Union has decided to limit intellectual property rights in order to guarantee other fundamental rights, for example.[835]

Due to the fact that trade secrets share many similarities with intellectual property rights, as seen in chapter 1, a fair balance exercise[836] could be useful when pondering conflicts with other fundamental rights in the hypothesis that trade secrets are given fundamental rights protection. A weighing of fundamental rights in search of a fair balance would then govern such an analysis. Also, though they do not constitute intellectual property rights, trade secrets could be subject to some analogies in jurisprudence regarding the fair balancing of intellectual property protection with fundamental rights in the Court of Justice of the European Union.

Nonetheless, the protection of trade secrets is limited to a greater extent than intellectual property rights.[837] In cases such as the one we are concerned with here, in which Google Search, business users, and end-users have different interests and rights at stake, and given the hierarchy of norms, trade secrets are subject to greater limitations, especially when

is the main tool for the resolution of constitutional conflicts. Article 52(1) of the EU Charter provides an overarching description of the mechanism [. . .] IP rights are therefore without doubt not absolute rights, and must always be balanced with other rights and interests." Martin Husovec, "The Essence of Intellectual Property Rights under Article 17(2) of the EU Charter," *German Law Journal* 20, no. 6 (September 2019): 846-847, https://doi.org/10.1017/glj.2019.65.

[835] See: "The protection of the right to intellectual property is indeed enshrined in Article 17(2) of the Charter of Fundamental Rights of the European Union ('the Charter'). There is, however, nothing whatsoever in the wording of that provision or in the Court's case-law to suggest that that right is inviolable and must for that reason be absolutely protected." Case C-70/10, Scarlet Extended SA v. Société belge des auteurs, compositeurs et éditeurs SCRL (SABAM), CJEU 2011 § 43; "Furthermore and above all, protection of the fundamental right to respect for private life at EU level requires derogations and limitations in relation to the protection of personal data to apply only in so far as is strictly necessary." Case C-362/14, Maximillian Schrems v. Data Protection Commissioner, joined party: Digital Rights Ireland Ltd, THE COURT (Grand Chamber), CJEU 2015 § 95. Also: C-516/17, Spiegel Online GmbH v. Volker Beck, CJEU 2017, Judgement (July 29, 2019); C-476/17, Pelham GmbH and Others v. Ralf Hütter and Florian Schneider-Esleben, CJEU 2017, Judgement (July 29, 2019); C-469/17, Funke Medien NRW GmbH v. Bundesrepublik Deutschland, CJEU 2017, Judgement (July 29, 2019).

[836] "When implementing directives, Member States should opt for an interpretation that strikes a fair balance between the different fundamental rights protected by EU law. National authorities and judges should read national provisions in a manner that is consistent not only with directives but also with the EU's fundamental rights. Secondly, the CJEU recalled that Article 52 of the Charter sets out that any limitation on the exercise of the fundamental rights of the Charter must respect the essence of such rights. A measure that seriously infringes fundamental rights does not comply with the fair balance requirement." Giannino, "*Coty Germany*," 822-823

[837] Husovec, "Essence of Intellectual Property Rights," 849.

it comes to the assessment of proportionality, which is a general principle of EU law.[838] Likewise, Recital 21 of the EU's Trade Secret Directive specifically states the following:

> In line with the **principle of proportionality**, measures, procedures and remedies intended to protect trade secrets should be tailored to meet the objective of a smooth-functioning internal market for research and innovation, in particular by deterring the unlawful acquisition, use and disclosure of a trade secret. Such tailoring of measures, procedures and remedies should not jeopardise or undermine **fundamental rights** and freedoms or the public interest, such as public safety, consumer protection, public health and environmental protection.[839]

Consequently, fundamental rights guaranteed by European Union provisions, such as data protection, access to information, and other fundamental rights, necessarily take precedence over the protection of algorithmic trade secrets. Because the right to an explanation of algorithms which is needed to enable users to exercise their fundamental rights would inevitably come in conflict with the protection of trade secrets, limiting trade secret protection by legal means through literal, contextual, and teleological interpretations is crucial to upholding the rights of (end and business) users.

A further example of limiting trade secrets lies in the current proposal for a Regulation of the European Parliament and of the Council on a Single Market For Digital Services (Digital Services Act), which foresees the possibility of researchers having access to databases of very large online platforms in Article 31. The goal of this particular provision is to allow researchers to perform investigations that contribute to the identification and understanding of systemic risks, such as negative effects for the exercise of the fundamental rights to respect for private and family life, freedom of expression and information, and the prohibition of discrimination.[840] This is a concrete legislative proposal to address harms to fundamental rights in the scope of data processing of online platforms, which could eventually be applied to Google.

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[838] Gianclaudio Malgieri, "Trade Secrets v Personal Data: A Possible Solution for Balancing Rights," *International Data Privacy Law* 6, no. 2 (May 2016): 104, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3002685 093/idpl/ipv030.

[839] Recital 21. Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) against Their Unlawful Acquisition, Use and Disclosure(Text with EEA relevance), 2016, O.J. (L 157), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016L0943 (my boldface).

[840] See: Articles 26 and 31. Proposal for a Regulation of the European Parliament and of the Council on a Single Market for Digital Services (Digital Services Act) and Amending Directive 2000/31/EC, 2020, COM/2020/825 final, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020PC0825&from=en.

5 Legal Capabilities of Strategic Regulation: Right to Explanation in Practice and Why Law Can Also Be Code

As stated in the previous section, since intellectual property status does not apply to trade secrets in EU Law and, consequently, is not considered a fundamental right, the major legal criteria to assess right to explanation proposals are their necessity and proportionality, not necessarily a balancing exercise.[841] A proper balance between the necessity, the means used, and the intended aim of legal and technical criteria to limit the proprietary rights of trade secrets owners and to guarantee greater consumer welfare is thus paramount to implement a right to explanation.

A right to explanation should not be restricted to just a matter of principle, but also be accompanied by a liability regime for cases in which false or incomplete information is provided. At first glance, the thought of characterizing a right to explanation as meaning complete transparency of the underlying algorithms that informed automated decisions may seem like a reasonable solution to the problem. Ingenuously, it is possible to believe that the effects of biased and opaque trade secrets that protect these business models can be remedied through total algorithm transparency. But this type of transparency does not, in itself, guarantee an understanding of how these platforms work, nor how they make their automated decisions. In this section, a vast array of legal instruments are analyzed, ones that can and should be implemented in order to put into effect a right to explanation that is both feasible for companies and suitable for users of their services.

Therefore, I contest the idea of **technological inevitabilism** and put forth a systematic and holistic approach towards a right to explanation, beyond the contours of Recital 71 of the GDPR. A couple of questions guide this approach: How would data subjects understand the decision-making criteria? What is their average knowledge on the topic?

An ideal right to explanation ought to be focused on the answers to these questions, or rather, the individual user or business user to whom the decision is explained. In other words, what is needed is a right to explanation focused on the user (business or individual) and not just on the algorithm to be explained.[842]

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[841] Vasiliki Kosta, "The Principle of Proportionality in EU Law: An Interest-Based Taxonomy," in Joana Mendes, ed., EU Executive Discretion and the Limits of Law (Oxford: Oxford University Press, 2019).

[842] "The approach being taken to data in Europe is far from holistic. Leaving aside the rhetoric of fundamental and human rights, it is apparent that most regulators take account of data only from a perspective of privacy and data protection, thus showing their failure to understand the role of data as digital assets." Guido Noto La Diega, "Data as Digital Assets: The Case of Targeted Advertising" in *Personal Data in Competition, Consumer Protection and Intellectual Property Law: Towards a Holistic Approach?*, org. Mor Bakhoum et al., MPI Studies

The present thesis has attempted to perform a broad-reaching analysis, one that encompasses matters related to intellectual assets, data protection, competition, and fundamental rights.[843] An approach focused solely on the GDPR and the systematic interpretation of its provisions, though well-intentioned, would be very limited.[844]

Civil society, academia, policymakers, and regulators, in general, ought to remember that "what we do and don't know about the social (as opposed to the natural) world is not inherent in its nature, but is itself a function of social constructs."[845] That is to say that the amount of obligations we propose for companies, the standards that we set for algorithms, and the regulations that we impose on governments are all societal choices, expressed by law. Thus, the workings of market players can be subjected to a transition from black boxes to transparency and accountability.[846] I assert that, by means of some of the instruments analyzed throughout this thesis, the European Union has taken some steps in this direction.[847]

The aspect of improving social standards through the enforcement of laws is at the core of regulating technologies. If one believes that algorithmic technologies are supposed to contribute to the (economic, social, and educational) development of our society, then these

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on Intellectual Property and Competition Law, vol. 28 (Berlin, Heidelberg: Springer Berlin Heidelberg, 2018), 489, https://doi.org/10.1007/978-3-662-57646-5.

[843] "Given the significant overlap between competition, data protection and consumer protection issues in digital sectors, regulators of these fields should work together to define potential enforcement strategies capable of promoting competition, protecting the interests of consumers and safeguarding their data protection rights." Llanos, "Close Look on Privacy Protection," 253. See also: Sonia Morano−Foadi and Stelios Andreadakis, "Reflections on the Architecture of the EU after the Treaty of Lisbon: The European Judicial Approach to Fundamental Rights," *European Law Journal* 17, no. 5 (September 2011): 595-610, https://doi.org/10.1111/j.1468-0386.2011.00568.x.

[844] "In the face of an ever-increasing digitalisation of our society, and the growing informational power asymmetries that accompany this shift, the potential for empowerment through *individual* rights is limited. This fact is recognized in the 'architecture of empowerment' provided by the GDPR, which places individual citizens and their rights in a broader infrastructure, also empowering societal organisations as well as data protection authorities (DPAs)." René L. P. Mahieu and Jef Ausloos, "Harnessing the Collective Potential of GDPR Access Rights: Towards an Ecology of Transparency," Internet Policy Review, July 6, 2020, https://policyreview.info/articles/news/harnessing-collective-potential-gdpr-access-rights-towards-ecology-transparency/1487. See also: Economides and Lianos, "Antitrust and Restrictions," 7.

[845] Pasquale, *Black Box Society*, 2.

[846] "[B]y willingly creating an algorithm that works in a value-laden and particular manner, firms voluntarily become a party to the decision system and take on the responsibility of the decision to include the harms created, principles violated, and rights diminished by the decision system. How much responsibility and for what acts depends on how the algorithm is designed. In fact, as is argued here, the more the algorithm is constructed as inscrutable and autonomous, the more accountability attributed to the algorithm and the firm that designed the algorithm." Kirsten Martin, "Ethical Implications and Accountability of Algorithms," *Journal of Business Ethics* 160, no. 4 (December, 2019): 844, https://doi.org/10.1007/s10551-018-3921-3.

[847] "Europe has a role to play, but by fundamentally rethinking the status of data, even if it means doing so negatively. Requiring regulation of data usage, being transparent about its usefulness, its origin, its destination, and even how the collective can or can't use it. To do so, we need to rehabilitate institutions and regulate the dangerously extractive economy – whether for the environment or humans – in this digital world, which is sold to citizens as existing only in a "cloud" separate from our earthly realities." Antoinette Rouvroy, "Algorithmic Governmentality and the Death of Politics," interview by Green European Journal, March 27, 2020, https://www.greeneuropeanjournal.eu/algorithmic-governmentality-and-the-death-of-politics/.

products of human ingenuity ought to act in favor of individual users, and not the other way around. "AI reasoning should be able to take into account societal values, moral and ethical considerations; weigh the respective priorities of values held by different stakeholders in various multicultural contexts; explain its reasoning; and guarantee transparency."[848]

5.1 Circumventing Complexity

A regulation drafted based on the simplification of the design of algorithmic decision-making processes is beneficial to the digital environment.[849] This is the first step towards explainability and it may be achieved by considering the societal costs of the complexity of such processes. This proposal faces obvious economic challenges, since complexity is also related to competitive advantage and efficiency. However, it can serve the purpose of ensuring explainability in open-source models and in software products developed due to governmental procurement, which are usually both keen on ensuring transparency.

According to Emre Bayamlıoğl, by reducing algorithmic complexity and, consequently, increasing interpretability of results, the right to explanation can be implemented by design.

> First, as a rule, systems may be allowed to operate only on a limited set of possible features. By doing so, the total number of relationships handled by the algorithm may be reduced to a human intelligible level. Second, the chosen learning method may allow for models that can be more easily parsed (e.g. decision tree algorithms) in comparison to, for instance, deep learning or neural network type of algorithms. A third method could be setting general parameters for the learning process to bring a threshold to complexity so that the resulting model would not defy human comprehension.[850]

Maayan Perel and Niva Elkin-Koren also investigate by-design approaches, and contend that transparency alone is "inadequate to safeguard algorithmic accountability" due to, among other things, the fact that "it is very difficult to read, follow, and predict the

[848] Virginia Dignum, "Ethics in Artificial Intelligence: Introduction to the Special Issue," *Ethics and Information Technology* 20, no. 1 (March 2018): 1, https://doi.org/10.1007/s10676-018-9450-z.
[849] "Accuracy is a necessary but insufficient condition for successful explanation, especially when the underlying system is too complex for the inquiring agent to fully comprehend. In these cases, we tend to value simplicity as an inherent virtue of candidate explanations." David S. Watson and Luciano Floridi, "The Explanation Game: A Formal Framework for Interpretable Machine Learning," *Synthese* 198 (2021): 9223, https://doi.org/10.1007/s11229-020-02629-9.
[850] Bayamlıoğlu, "Right to Contest Automated Decisions," 13-14.

complex computer code that underlies algorithms."[851] These characteristics, alongside the rapid evolution of algorithms and their ability to learn, make it harder for legislators to grasp the actual extent of algorithmic bias and subject algorithms to adequate scrutiny.

Therefore, the authors propose a sort of black box tinkering for researchers of algorithms, which consists of the "ability to challenge the regulating code and confront it with different scenarios" that "can reveal the blueprints of its decision-making process. Put more simply, black box tinkering enables individuals to interact with the hidden algorithms that regulate their behavior."[852] That is to say, Perel and Elkin-Koren believe that a way to circumvent complexity is to use a reverse engineering technique, one that examines database scenarios and employs observation and deduction in order to understand how a system actually works.

Researchers have been creating several software programs that test the relation between the inputs and the outputs of certain platforms by means of fictional user profiles that simulate gender, location, browsing patterns, etc., since reverse engineering is not always satisfactory when it comes to explainability of algorithmic results. A simulation of different inputs and observation of results generates decision trees and causal links between inputs and outputs.[853]Different outputs for different users searching with the same key words can show a certain bias of the platform.[854] Then, it is up to researchers to analyze if such biases are fair and lawful, and if inferences are accurate, acceptable, and non-discriminatory.[855]

Andrew Selbst and Solon Barocas also explore the possibility of regulating certain key areas in order to limit algorithmic complexity by purposefully setting "the parameters of the learning process to ensure that the resulting model is not so complex that it defies human comprehension."[856] The authors believe that this approach has already been implemented in areas deemed too critical to allow for excessive accuracy (which is usually a product of greater algorithmic complexity), such as "regulated industries like credit and insurance," which "have purposefully limited themselves to a relatively small set of features and less

[851] Maayan Perel and Niva Elkin-Koren, "Black Box Tinkering: Beyond Disclosure in Algorithmic Enforcement," *Florida Law Review* 69, no. 1 (January 2017): 188, http://www.floridalawreview.com/wp-content/uploads/Perel_Elkin-Koren.pdf. See also: Niva Elkin-Koren "Contesting Algorithms: Restoring the Public Interest in Content Filtering by Artificial Intelligence," *Big Data & Society* 7, no. 2 (July-December 2020): 1-13, https://doi.org/10.1177/2053951720932296.
[852] Perel and Elkin-Koren, 185.
[853] Maja Brkan and Grégory Bonnet, "Legal and Technical Feasibility of the GDPR's Quest for Explanation of Algorithmic Decisions: Of Black Boxes, White Boxes and Fata Morganas," *European Journal of Risk Regulation* 11, no. 1 (March 2020): 34-35, https://doi.org/10.1017/err.2020.10.
[854] O'Neil, *Weapons of Math Destruction*, 210-211.
[855] Janssen, "An Approach for a Fundamental Rights Impact Assessment," 98.
[856] Andrew D. Selbst and Solon Barocas, "The Intuitive Appeal of Explainable Machines," *Fordham Law Review* 87, no. 3 (2018): 1111, https://ir.lawnet.fordham.edu/flr/vol87/iss3/11.

sophisticated learning methods," and assert that "in so doing, they have been able to generate models that lend themselves to sensible explanation."[857]

The proposal for an Artificial Intelligence Act chose a similar approach to this, purposefully limiting the development of certain technologies that are deemed too critical due to the risks they represent to society, fundamental rights, and individual liberties. Furthermore, even though it may limit technological innovation, legislators believe that some systems, such as real-time remote biometric identification and social scoring,[858] ought to be banned altogether, especially because their complexity may lead to discrimination, unfair commercial practices, and other societal harms.

Of course, any solution proposed to address the lack of algorithmic explainability should not significantly compromise users' experiences when using Google search. This would prompt an exodus of users from the platform, which is not what this investigation proposes.

Whether through the lenses of analysis of competition, data protection, or intellectual assets, it is crucial that competition be fostered, not hindered, which includes refraining from effectively ruining an impressive algorithmic invention. This can be achieved through a proportionality exercise that would take into consideration the proper balance between pivotal elements of fundamental rights consideration. The interests of platforms in having their algorithmic complexity hindered ought to be equated with the need to foster more transparent digital environments, to ensure users' rights (either consumers' or business'), at the same time that innovation is encouraged.

Furthermore, it is essential to have system feedback that improves and corrects errors in algorithms. If we look at the past to see how much data collection has grown and how much algorithms are able to produce error (an inevitable consequence of statistical programs that run on probability), the scale of new errors that can be incurred in the future becomes clear. Therefore, constant "fine-tuning [of] the algorithms running the machines" is vital, which can be achieved through mandatory audits and impact assessments.[859]

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[857] Selbst and Barocas, 1111.
[858] Article 5. Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, COM/2021/206 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206.
[859] O'Neil, *Weapons of Math Destruction*, 153-154.

5.2 Essential Facilities Consideration

Hazan proposes a technical solution to Google's vertical search problem similar to what Microsoft had to do with its operating system.

> [T]he optimal solution to remedy the antitrust violations [. . .] is for Google to publish its Application Programming Interfaces ('APIs'). Other search verticals could then compete with Google on the merits of their services by integrating into Google search. [. . .] antitrust authorities should require Google to document its own APIs and allow competing content providers like search verticals to develop applications that integrate into a Google core search. An API is a set of standardized requests that allows software programs to communicate with each other. Specifically, when APIs are defined for the host software, they allow programs to call upon the host program to 'request services' that it would not otherwise be able to duplicate itself.[860]

This is a technical solution through competition enforcement that focuses on the interoperability aspect of Google Search. The idea is to mandate better communication standards between the most superficial layers of different vertical search applications that can eventually be ranked on the results page of Google Search. It does not carry such prohibitive costs as a complete algorithmic disclosure solution would require, for example.[861]

Recently, the ruling in a United States Supreme Court copyright case was handed down in favor of Google against Oracle America Inc., a technology company from Texas.[862] Google had copied several lines of code from a computer program owned by Oracle (Java SE) in order to develop Application Programming Interfaces (APIs) for its operational system Android.[863] The Court decided that such copying of code constituted fair use because Google appropriated "only what was needed to allow users to put their accrued talents to work in a new and transformative program."[864]

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[860] Hazan, "Stop Being Evil," 807.

[861] "It is important to realize that there can never be a purely technological solution to privacy, that social issues must be considered in their own right. In the computer science lab we are trying to construct systems that are privacy enabled, that can give power to the individual. But only society can cause the right system to be used." Mark Weiser, "Some Computer Science Issues in Ubiquitous Computing", *Communications of the ACM* 36, no. 7 (July 1993): 82, https://doi.org/10.1145/159544.159617. See also: Riccardo Guidotti et al., "A Survey of Methods for Explaining Black Box Models," *ACM Computing Surveys* 51, no. 5 (January 23, 2019): 1-42, https://doi.org/10.1145/3236009.

[862] Google LLC v. Oracle America, Inc., 593 U. S. __ (2021), Opinion of the Court (April 5, 2021).

[863] "An API (or application programming interface) is the programmatic means by which a computer-based service (whether based on the cloud or elsewhere) can interact with other software and computer-based services. In a sense, it is a user interface for machines to access machines." Katz, "Google, APIs and the Law," 287.

[864] Google LLC v. Oracle America, Inc., 593 U. S. __ (2021), Opinion of the Court (April 5, 2021), 4.

In other words, Google relativized Oracle's proprietary intellectual rights by using part of its computer codes to develop its own technology, and the Court ruled in favor of such practices as a means to promote innovation and Google's creativity objectives.[865]

Google argued that APIs could not be protected by intellectual property rights (that is, are not copyrightable) because they involve little creative expression, in addition to being used by coders as an intermediary step to other groups of algorithmic instructions. This is an extremely similar argument to the essential facilities doctrine, explained in more detail in chapter 3. Furthermore, the public utility of the computer codes underlying the API was discussed in support of the conclusion, which aligns well with the arguments in this thesis and Hazan's proposal.

The publication of Google's API and the consequent integration of competitors into its search platform would allow for its vertical search application to be held to greater and improved competition standards based on merit. Services hindered by Google Search's exclusionary practices (laid out in chapter 3) would be granted a more level playing field for competing with Google's ancillary applications.

5.3 Casuistry in Explanation

An additional challenge that the conceptualization of a right to explanation has to face is that "there is no agreement on what an explanation is. Indeed, some works provide as explanation a set of rules, others a decision tree, others a prototype (especially in the context of images)."[866] Also, explanations can be case-based, contextual, contrastive, counterfactual, scientific, simulation-based, statistical, and trace-based, among others.[867]

Since "it is challenging or even impossible to define explanations in the abstract, without taking into account the decision-making model, the kind of data used, the desired understandability, or the kind of questions we ask regarding the decision,"[868] these factors

[865] "Here Google's use of the Sun Java API seeks to create new products. It seeks to expand the use and usefulness of Android-based smartphones. Its new product offers programmers a highly creative and innovative tool for a smartphone environment. To the extent that Google used parts of the Sun Java API to create a new platform that could be readily used by programmers, its use was consistent with that creative 'progress' that is the basic constitutional objective of copyright itself." Google LLC v. Oracle America, Inc., 593 U. S. __ (2021), Opinion of the Court (April 5, 2021), 25.
[866] Guidotti et al., "Survey of Methods," 36. See also: Helleringer and Sibony, "European Consumer Protection," 625.
[867] Shruthi Chari et al., "Directions for Explainable Knowledge-Enabled Systems," 5, arXiv, March 17, 2020, https://arxiv.org/pdf/2003.07523.pdf.
[868] Brkan and Bonnet, "Legal and Technical Feasibility," 26.

must be considered in explanation proposals. A relational concept of explainability associates datasets with the algorithmic models and the public to which appropriate explanations must be provided.

A comprehensive explanation is necessarily multifaceted, involving the answers to many questions, such as: "What were the main factors in the decision? Would changing a given factor have changed the decision? Why did two different similar-looking inputs produce different decisions?"[869]

The application of general explainability to particular cases demands a generalization of explanation principals and, at the same time, a particularization of explanation parameters, which is not an easy task to achieve.[870]

Any approach to explainability has to be focused on the user, that is, focused on its target audience and context.[871] A relational explanation takes into account its audience and provides useful information accordingly. However, what is useful to one user may not be useful for another. Just like consumer protection takes into account information asymmetries in order to assess the right amount of information necessary to inform transactions, the explainability of algorithmic decisions must also be adequate for its target audience, the best possible version of an "average user" of the platform.[872] "Therefore, the level, quality and target of explanation became a significant issue of governance, because there is no standard format for explanation that would apply to all algorithmic or AI systems."[873]

A relational explanation also employs an appropriate vocabulary, one that will be palatable and intelligible for the user in order to get the message across. For example, since accurate vocabulary may be excessively technical and even cause greater confusion,

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[869] Brkan and Bonnet, "Legal and Technical Feasibility," 25-26. Finale Doshi-Velez et al. assert that an explanation must reveal: the main factors taken into consideration in the decision, the possibility of changing a given factor changing the decision, and the possibility of two different similar-looking inputs producing different decisions. Finale Doshi-Velez et al., "Accountability of AI under Law: The Role of Explanation," arXiv, 2017, http://arxiv.org/pdf/1711.01134.pdf.

[870] Watson and Floridi, "Explanation Game," 9224.

[871] Brkan and Bonnet, "Legal and Technical Feasibility," 29. See Helleringer and Sibony's take on context: "Context Matters. This key lesson from behavioral sciences is not well reflected in EU consumer law as it stands. At present, the numerous provisions of EU law which mandate disclosure of information focus mainly on content (what must be disclosed) and language ('clear and comprehensible')." Helleringer and Sibony, "European Consumer Protection," 625-626. See also: "As AI systems have become more prevalent, explainability has joined accountability and transparency as a governance principle expected to increase the accountability of systems." Alison B. Powell, "Explanations as Governance? Investigating Practices of Explanation in Algorithmic System Design," *European Journal of Communication* 36, no. 4 (August 2021): 373, https://doi.org/10.1177/02673231211028376.

[872] Allison Trites, "Black Box Ethics: How Algorithmic Decision-Making Is Changing How We View Society and People: Advocating for the Right for Explanation and the Right to Be Forgotten in Canada," *Global Media Journal: Canadian Edition* 11, no. 2 (2019): 18-30, http://gmj-canadianedition.ca/wp-content/uploads/2020/06/03_Trites-Volume-11-issue-2-Final.pdf.

[873] Powell, 367.

especially for end-users, plain language and even a visual explanation, which does not provide comprehensive details but is easier to understand by those who are not educated in the area, may be more suitable to them.[874] However, when it comes to business users, greater levels of detail, technical vocabulary, and more intricate parameters of the inner-functioning of the platform may not only be more suitable, but also more useful.[875]

> All computer programs (thereby artificial agents) can provide execution traces, which show what statements are being executed as the program runs. Those traces can be analysed by a human expert to understand how an agent, being automated or autonomous, made a given decision. For example, a logic-based system can provide a complete formal proof showing how a given decision will allow a given goal to be reached. While this approach can be useful, such traces are difficult to use for non-expert humans. Thus, it might be preferable to rely on another kind of information, called interpretations. Interpretations are descriptions of an agent's operations "that can be understood by a human, either through introspection or through a produced explanation." Unlike traces, interpretations are tailored to be readable and understandable not only by experts but also by users.[876]

Therefore, online platforms on which users and business interests combine to support the goal of explainability, such as Google Search, would ideally provide two forms of explanation: one that is simplified, employing simple vocabulary, providing information intelligible to non-specialists, and including only the details that are needed for the user to assert their individual rights on the platform; and another providing the right amount of technical information to describe the main parameters used for automated decisions, clarify opaqueness regarding competition standards, and provide details on operations of the utmost importance to business users, such as the ranking of results, for example.[877]

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[874] Robert Zheng and Kevin Greenberg, "Effective Design in Human and Machine Learning: A Cognitive Perspective," in Jianlong Zhou and Fang Chen, ed., *Human and Machine Learning: Visible, Explainable, Trustworthy and Transparent*, Human–Computer Interaction Series (Cham: Springer, 2018), 55-74; Brkan and Bonnet, "Legal and Technical Feasibility," 18-50.

[875] Edwin Lughofer, "Model Explanation and Interpretation Concepts for Stimulating Advanced Human-Machine Interaction with 'Expert-in-the-Loop'," in Jianlong Zhou and Fang Chen, ed., *Human and Machine Learning: Visible, Explainable, Trustworthy and Transparent*, Human–Computer Interaction Series (Cham: Springer, 2018), 177-221.

[876] Brkan and Bonnet, 25.

[877] Powell, "Explanations as Governance?" 362-375. See also: Gianclaudio Malgieri, "Automated Decision-Making in the EU Member States: The Right to Explanation and Other 'Suitable Safeguards' in the National Legislations," *Computer Law & Security Review* 35, no.5 (October, 2019): 22-23, https://doi.org/10.1016/j.clsr.2019.05.002.

5.4 A Focus on User Experience for Personalized Transparency

Several proposals involve the inclusion of icons and warnings that appear when users are subjected to algorithmic decisions. Such icons (e.g., question mark) would lead to an explanation that answers the question "What am I seeing?" In other words, they could be semantic shortcuts to explanations of what is happening in the decision-making process. In one proposal, the "what" icons would appear first, before the search is actually performed, to inform the user about the type of technology he would be using and, possibly, the probable results he could expect from it.[878]

Another design tool, which I suggest, is an icon (e.g., three dots) that provides an answer to the question "Why am I seeing this?" according to the user's profile. An icon such as this, in addition to other user-friendly tools that explain why the user is seeing something as a search result, can provide a basic explanation of the result, the parameters that informed the decision that led to it, its context, and how the system came to make that output.[879] The "why" icons would appear after a search is performed in this design.

Since most algorithmic business models are experts in profiling users for advertising purposes, why not use the minutial knowledge acquired for profile to ensure the adequacy of an individual explanation more effectively? Users with greater technical skills can be shown in-depth accounts of the algorithmic paths taken to reach a result. Lay users may be shown more accessible explanations, with easier language and even visual aids.[880]

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[878] "[U]sers are often more satisfied when they are given control over how the recommender functions on their behalf—even, in some cases, when that control increases the effort required of them, and when the resulting recommendations are objectively less accurate. The sweet spot is recommenders that balance serving users effectively, while ensuring that the users have the control they desire." Joseph A. Konstan and John Riedl, "Recommender Systems: From Algorithms to User Experience," *User Modeling and User-Adapted Interaction* 22 (2012): 114, https://doi.org/10.1007/s11257-011-9112-x.

[879] "Studies have shown that users like explanations, and use the explanations to help make decisions about which items to purchase (Herlocker et al. 2000; Tintarev and Masthoff 2008; Vig et al. 2009). Further, users feel the explanations help them understand the recommendations better, and make choices that better fit their current mood or interests (Vig et al. 2009)." Konstan and Riedl, "Recommender Systems," 116. See also: Peter Kiefer et al., "Controllability Matters: The User Experience of Adaptive Maps," *Geoinformatica* 21 (2017): 619-641, https://doi.org/10.1007/s10707-016-0282-x.

[880] Otherwise, we might achieve exactly the opposite of inclusion through a right to explanation: "Awareness about profiling activities and the necessary media literacy skills needed to react to them (which are likely correlated with existing markers of socioeconomic status such as education and income) could become a new axis of discrimination, exacerbating existing inequalities." Büchi et al., "Chilling Effects of Algorithmic Profiling," 12. See also: Powell, "Explanations as Governance?" 362-375; Amanda Peel, Troy D. Sadler and Patricia Friedrichsen, "Learning Natural Selection through Computational Thinking: Unplugged Design of Algorithmic Explanations," *Journal of Research in Science Teaching* 56. No. 7 (September 2019): 983-1007, https://doi.org/10.1002/tea.21545; Min Kyung Lee, "Understanding Perception of Algorithmic Decisions: Fairness, Trust, and Emotion in Response to Algorithmic Management," *Big Data & Society* 5, no. 1 (January-June 2018), https://doi.org/10.1177/2053951718756684; Bart P. Knijnenburg et al., "Explaining the User Experience of Recommender Systems," *User Modeling and User-Adapted Interaction* 22 (2012): 441-504, https://doi.org/10.1007/s11257-011-9118-4.

Just like accessible and intelligible privacy notices are required by the GDPR, explanations can be layered with the aim of achieving qualified and personalized transparency: "[A]rtificial intelligence and superhuman information processing capabilities could redefine the optimal complexity of legal rules and refine, for example, the content of disclosures to a hitherto unachievable level of granularity."[881] Such techniques ought to be employed to provide explanations at different stages of a decision-making process, which also expands the explainability of algorithmic models beyond just their final results.

> [I]f we desire a complete explanation of a given decision, we need an explanation for each step: first, an explanation of how the agent assesses the situation with the perceived data; second, explanation of factors impacting the decision with respect to its goal; third, explanation of each factor involved in the decision-making process; and fourth, explanation of the final "product" of the decision.[882]

Improvements in user experience have already been widely employed to enhance user engagement, including on the same platforms these proposals aim to improve.[883] However, economic incentives for service providers such as Google do not favor explanation tools. This is why a regulatory approach that suggests user-friendly designs for implementing explainability is necessary and recommendable.

5.5 Legal Aspects and Possibilities

It is also essential to consider the legal feasibility of explanations, especially when faced with the claims of secrecy surrounding the intellectual assets of an algorithmic business model. As discussed in chapters 1 and 2, this issue should not be investigated through binary perspectives. The alternative to algorithmic opaqueness is not complete disclosure. Beyond courtrooms' confidentiality and the restriction of access to procedural documents, to hearings and the corresponding records or transcripts, and by making available to interested third

[881] Christoph Busch, "Implementing Personalized Law: Personalized Disclosures in Consumer Law and Data Privacy Law," The University of Chicago Law Review 86, no. 2 (March 2019): 330, https://www.jstor.org/stable/10.2307/26590557. Also: "Tailoring privacy disclosures to the needs of individual targets requires that the information provider identifies its audience and their informational needs and preferences. Information about privacy preferences could be based on past behavior." Busch, "Implementing Personalized Law," 321-322. See also: Juliana J. Ferreira and Mateus S. Monteiro, "What Are People Doing About XAI User Experience? A Survey on AI Explainability Research and Practice," in Aaron Marcus and Elizabeth Rosenzweig, ed., *Design, User Experience, and Usability: Design for Contemporary Interactive Environments* (Cham: Springer, 2020), 56-73.
[882] Brkan and Bonnet, "Legal and Technical Feasibility," 32.
[883] Ferreira and Monteiro, "What Are People Doing," 56-73.

parties a non-confidential and redacted version of judicial decisions regarding trade secrets, there are substantive degrees of transparency to be achieved regarding the functioning of an algorithm without necessarily making it public.

> [T]he extent to which a trade secret and the underlying functioning of an algorithm are revealed largely depend on the scope of the explanation. If the explanation requires the revelation of the entire underlying logic of the algorithm, the trade secret would obviously be revealed. If, on the other hand, the explanation aims to divulge, for example, only the main factor influencing a decision, the trade secret would remain untouched. In cases where an algorithm is protected by the trade secret, the right to explanation (albeit in its more limited version) could be safeguarded through the balancing of different interests.[884]

Consequently, the amount of steps to be disclosed can also be assessed in a relational manner. Casuistry may be used to contextualize the actual necessity of each case, either by the company itself, competition authorities, or magistrates. From a legal perspective, it is first necessary to clearly identify the interests of different parties involved and then to weigh the amount of information required to mitigate eventual conflicts. Just as a risk-based approach can be used to mitigate risks engendered by data processing activities, an information-asymmetry assessment can be employed to evaluate the amount of explanation, transparency, and information required to mitigate risks of anti-competitive and opaque behavior online.

On the one hand, end users (consumers) may require more palatable, simplified, and general information in order to understand the reasoning behind automated decision-making processes. On the other hand, the level of explanation required by business users in order to properly comprehend the inner-workings of a platform may be greater, involving algorithmic information about the choice of databases, parameters for implementing biases, a detailed causal relation between inputs and outputs, in addition to the interpretation of ranking criteria.

The main aim of providing explanations to the two categories of users relates to the functional necessity of a tool for addressing the opaqueness of automated decision-making processes. All things considered, such a tool should be implemented according to its feasibility from a technical perspective.

Moreover, the legal feasibility of a right to explanation also depends on an interpretative analysis of several GDPR provisions. More precisely, GDPR provisions regarding the right to information and right to access that require the controller to provide the

[884] Brkan and Bonnet, "Legal and Technical Feasibility," 41.

data subject with the "meaningful information about the logic involved" in case of the "existence of automated decision-making" (Articles 13, 14, and 15) should be interpreted and applied alongside Article 22 of the GDPR, which regulates automated decision-making, as well as Recital 71, which epitomizes explanation as one of the safeguards in case of such decisions.[885]

Article 15 of the GDPR, in particular, determines the right of users subjected to automated decision-making to obtain "meaningful information about the logic involved" in such decisions.

> Article 15.1: The data subject shall have the right to obtain from the controller confirmation as to whether or not personal data concerning him or her are being processed, and, where that is the case, access to the personal data and the following information: [. . .] (h) the existence of automated decision-making, including profiling, referred to in Article 22(1) and (4) and, at least in those cases, **meaningful information about the logic involved**, as well as the significance and the envisaged consequences of such processing for the data subject.[886]

This provision of access to information, contextually, can be interpreted as leaning towards explainability if there is a broader approach to the GDPR.[887] Thus, the 2016 Regulation has imbued administrative authorities within the EU with more enforcement power of data protection provisions, such as the possibility to implement a right to explanation.[888] It also has increased fines and the capacity of national data protection authorities to apply them, effectively and procedurally raising the standards for data protection in the Union.

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[885] Brkan and Bonnet, "Legal and Technical Feasibility," 21. See also: Joanna Mazur, "Right to Access Information as a Collective-Based Approach to the GDPR's Right to Explanation in European Law," *Erasmus Law Review* 11, no. 3 (December 2018): 178-189, https://ssrn.com/abstract=3356770.

[886] Article 15. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (my boldface).

[887] "Actually, these three safeguards (information, explanation, challenging the decision) can all be inferred from other provisions in the GDPR. / In particular, the reference to 'specific information' can be well inferred from Article 15(2), lett. h (the right to receive 'meaningful information about the logic involved, as well as the significance and the envisaged consequences' of automated decision-making data processing): it is not clear whether 'specific' information should refer to something more, but a contextual interpretation of 'meaningful information' at article 15(2), lett. h seems a good safeguard even though it should be clarified with more detail. / The right to 'challenge' the automated decision is another interesting safeguard: it seems it might be inferred from the 'right to contest' at Article 22(3). Apparently, challenging the decision and contesting the decision might be synonyms,even though these two terms have different nuances." Gianclaudio Malgieri, "Automated Decision-Making in the EU Member States: The Right to Explanation and Other 'Suitable Safeguards' in the National Legislations," *Computer Law & Security Review* 35, no. 5 (October, 2019): 4-5, https://doi.org/10.1016/j.clsr.2019.05.002.

[888] Bryan Casey, Ashkon Farhangi, and Roland Vogl, "Rethinking Explainable Machines: The GDPR's Right to Explanation Debate and the Rise of Algorithmic Audits in Enterprise," *Berkeley Technology Law Journal* 34, no. 1 (2019): 151, https://doi.org/10.15779/Z38M32N986.

5.6 Article 29 Data Protection Working Party Recommendations

The Guidelines on Automated individual decision-making and Profiling from the Article 29 Data Protection Working Party (currently, the EDPB) proposes a comprehensive list of "good practice suggestions for controllers to consider when making solely automated decisions, including profiling (as defined in Article 22[1])."[889] Other recommendations, some of which have already been mentioned throughout this thesis, include: the auditing of algorithms through machine learning systems to determine if they produce discriminatory, erroneous, or unjustified results;[890] third-party audits in which auditors are provided with information as to how the algorithm or machine learning system works;[891] contractual assurances (in the form of clauses or separate documents) for third-party algorithms that auditing and testing has been carried out and the algorithm is compliant with agreed standards;[892] implementation of anonymization and pseudonymization techniques in the context of profiling;[893] creation of procedures for data subjects to contest automated decisions;[894] certification for processing

[889] Article 29 Data Protection Working Party, "Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679" (WP251rev.01, 3 October, 2017), at 32, https://ec.europa.eu/newsroom/article29/item-detail.cfm?item_id=612053. See also: Kaminski, "Right to Explanation, Explained," 205-206.

[890] See: Casey, Farhangi, and Vogl, 143-188; Irene Unceta, Jordi Nin, and Oriol Pujol, "Risk Mitigation in Algorithmic Accountability: The Role of Machine Learning Copies," *PLoS ONE* 15, no. 11 (November 2020): e0241286, https://doi.org/10.1371/journal.pone.0241286.

[891] See: Philip Adler et al., "Auditing Black-Box Models for Indirect Influence," *Knowledge and Information System* 54, no. 1 (2018): 95-122, https://doi.org/10.1007/s10115-017-1116-3; Michael Veale and Reuben Binns, "Fairer Machine Learning in the Real World: Mitigating Discrimination without Collecting Sensitive Data," *Big Data & Society* (July-December 2017): 1-17.

[892] See: Fabiana Di Porto and Marialuisa Zuppetta, "Co-Regulating Algorithmic Disclosure for Digital Platforms," *Policy and Society* 40, no. 2 (2021): 272-293, https://doi.org/10.1080/14494035.2020.1809052; Lavinia Mihaela Cristea, "Emerging IT Technologies for Accounting and Auditing Practice," *Audit Financiar* XVIII, no. 4 (160) (2020): 731-751, http://revista.cafr.ro/temp/Abstract_EN_9651.pdf.

[893] Claudia Cevenini et al., "Privacy Through Anonymisation in Large-Scale Socio-Technical Systems: Multi-lingual Contact Centres Across the EU" in *Internet Science: Proceedings of the Third INSCI*, 2016 (Cham: Switzerland: Springer), 291-305, https://link.springer.com/chapter/10.1007/978-3-319-45982-0_25; Mike Hintze, "Viewing the GDPR through a De-Identification Lens: A Tool for Compliance, Clarification, and Consistency," *International Data Privacy Law* 8, no. 1 (February 2018): 86-101, https://doi.org/10.1093/idpl/ipx020; Matthias Marx et al., "Anonymity Online: Current Solutions and Challenges" in *Privacy and Identity Management: The Smart Revolution*, ed. Marit Hansen et al., Privacy and Identity 2017, IFIP Advances in Information and Communication Technology, vol. 526 (Cham, Switzerland: Springer, 2018), https://link.springer.com/chapter/10.1007/978-3-319-92925-5_4.

[894] Adrián Todolí-Signes, "Algorithms, Artificial Intelligence and Automated Decisions Concerning Workers and the Risks of Discrimination: The Necessary Collective Governance of Data Protection," *Transfer: European Review of Labour and Research* 25, no. 4 (November 2019): 465-481, https://doi.org/10.1177/1024258919876416; Estefania McCarroll, "Weapons of Mass Deportation: Big Data and Automated Decision-Making Systems in Immigration Law," *Georgetown Immigration Law Journal* 34, no. 3 (Spring 2020): 705-732, https://www.law.georgetown.edu/immigration-law-journal/wp-content/uploads/sites/19/2020/08/Weapons-of-Mass-Deportation-Big-Data-and-Automated-Decision-Making-Systems-in-Immigration-Law.pdf.

operations under quality-standardized procedures;[895] establishment of codes of conduct for auditing processes involving machine learning;[896] and the creation of ethical review boards within the company to assess potential harms related to profiling.[897]

5.7 Possible Application to Other Market Agents

Finally, I consider that these provisions may be applicable to other actors in the future if properly contextualized. If we compare Google's anti-competitive practices with Microsoft, they largely resemble the exclusionary conduct that was the object of antitrust enforcement in the past. Likewise, competitors' search engines and secondary applications might eventually carry out similar actions for which this analysis may prove useful.

> [I]t should not be forgotten that other players might attempt to replicate Google's conduct should they gain market power e.g. in order to favour their own services, and by the time antitrust intervention takes place competition may have been seriously distorted, leading to significant consumer harm. Focusing solely on Google might make sense from an enforcement perspective considering its current

[895] Raja Chatila et al., "Trustworthy AI," in *Reflections on Artificial Intelligence for Humanity*, ed. Bertrand Braunschweig and Malik Ghallab (Cham, Switzerland: Springer, 2011), 13-39 https://www.springer.com/gp/book/9783030691271; David Schneeberger, Karl Stöger, and Andreas Holzinger, "The European Legal Framework for Medical AI" in *Machine Learning and Knowledge Extraction*, ed. Andreas Holzinger et al., 4th IFIP TC 5, TC 12, WG 8.4, WG 8.9, WG 12.9 International Cross-Domain Conference, Lecture Notes in Computer Science, vol. 12279 (Cham, Switzerland: Springer, 2020), 209-226, https://www.springer.com/gp/book/9783030573201; "How to Build Trust in Artificial Intelligence," *Express Computer* (July 3, 2019), https://www.expresscomputer.in/artificial-intelligence-ai/how-to-build-trust-in-artificial-intelligence/37358/.

[896] J. L. "John" Alarcon, Troy Fine, and Cory Ng, "Accounting AI and Machine Learning: Applications and Challenges," *Pennsylvania CPA Journal* (2019): 3-7, https://mydigitalpublication.com/publication/?m=14667&i=583202&p=7&pp=1&ver=html5; David A. Wood, Abouzar Choubineh, and Behzad Vaferi, "Transparent Open-Box Learning Network Provides Auditable Predictions: Pool Boiling Heat Transfer Coefficient for Alumina-Water-Based Nanofluids," *Journal of Thermal Analysis & Calorimetry* 136, no. 3 (May 2019): 1395-1414, https://doi.org/10.1007/s10973-018-7722-9; Andre Nijhof et al., "Measuring the Implementation of Codes of Conduct. An Assessment Method Based on a Process Approach of the Responsible Organisation," *Journal of Business Ethics* 45, no. 1/2 (June 2003): 65-78, http://www.jstor.org/stable/25075056.

[897] Angela Joerin et al., "Ethical Artificial Intelligence for Digital Health Organizations," *Cureus* 12, no. 3 (March 7, 2020), https://www.cureus.com/articles/25462-ethical-artificial-intelligence-for-digital-health-organizations/metrics; Lyse Langlois and Catherine Régis, "Analyzing the Contribution of Ethical Charters to Building the Future of Artificial Intelligence Governance" in *Reflections on Artificial Intelligence for Humanity*, ed. Bertrand Braunschweig and Malik Ghallab (Cham, Switzerland: Springer, 2021), 150-170, https://www.springer.com/gp/book/9783030691271; Samuele Lo Piano, "Ethical Principles in Machine Learning and Artificial Intelligence: Cases from the Field and Possible Ways Forward," *Humanities & Social Sciences Communications* 7, no. 1 (June 17, 2020): 1-7, https://doi.org/10.1057/s41599-020-0501-9.

> stronghold over the ad tech value chain, but in the long run this might prove too narrow.[898]

To summarize, different legal proxies can be put to use in order to limit trade secrets through different legal lenses. This being the case, competition, data protection, intellectual assets, and fundamental rights may be juxtaposed by legal scholars, practitioners, and interested parties in support of greater explainability for algorithms. More transparency can be achieved through different means without necessarily imposing prohibitive costs for the algorithm owner (through algorithmic disclosure). Thus, the means put forth by these proposals are twofold: they involve legal theory, since trade secrets can be limited according to a proportionality assessment of interests and the extent of the necessity of the measures suggested for providing an actual explanation; and they employ technical means, due to the fact that enhanced transparency can be ensured without disclosing the whole algorithm.

Reassessing Lawrence Lessig's contention that code is law,[899] I believe that these suggestions demonstrate that law can also be code. By allowing a right to explanation to go beyond the borders of data protection law, it is possible to reduce the lack of algorithmic transparency and increase the protection of users online, whether they be natural persons or businesses. New legislation and judicial interpretations of existing laws ought to be conceived with this aim in mind.

Under EU law, the right to explanation present in Recital 71 is therefore only declarative of what a teleological approach to the law already determines, according to several fields. The legal basis for a right to explanation would serve in these domains of law, particularly, given the scope of my thesis, competition law and law concerned with unfair commercial practices.

6 Intermediary Conclusions

Despite the decentralized nature of the internet, its governance is being increasingly subjected to national and regional assertions of jurisdictional powers through legislative, judicial, and

[898] Damien Geradin and Dimitrios Katsifis, "'Trust Me, I'm Fair': Analysing Google's Latest Practices in Ad Tech from the Perspective of EU Competition Law," *European Competition Journal* 16, no. 1 (January 2020): 49, https://doi.org/10.1080/17441056.2019.1706413.

[899] Lawrence Lessig, *Code: Version 2.0* (New York: Basic Books, 2006). See also: Mireille Hildebrandt, "Code Driven Law: Scaling the Past and Freezing the Future," in *Is Law Computable?: Critical Perspectives on Law and Artificial Intelligence* ed. Simon Deakin and Christopher Markou (Oxford: Hart Publishing, forthcoming), 16-17, http://dx.doi.org/10.2139/ssrn.3522079.

administrative bodies worldwide. In the case of the European Union, an array of regulations regarding data protection, intellectual assets, fundamental rights, and competition have reinforced these tendencies. In the face of globalized technological markets, the GDPR, Regulation 2019/1150, the ePrivacy Directive, and the Digital Single Market Strategy are just a few initiatives that aim to assure the Union's self-determination in the online environment.

Such initiatives have increased the standards to safeguard the rights of users online, whether they be consumers or businesses dependent on internet platforms such as Google. Due to the manipulation of results rankings, the biased display of results, and even the anti-competitive control of intermediation prices in the advertising industry through algorithmic collusion, concerns regarding Google have prompted the enforcement of regulations and increased scrutiny of the company's activities.

Due to the fact that the fundamental rights of the parties involved are at stake in this matter, I have analyzed the hierarchical preponderance of users' rights in lieu of Google's proprietary algorithm, which allows for some limitations on the protection of its trade secret. Freedom of expression, the right to privacy, and data protection, as well as the fundamental right to access to information, are incompatible with the absolute inscrutability of Google's algorithm, which should not subsist.

Finally, I propose practical legal and technical approaches to attaining algorithmic explainability, such as third-party audits, minimum standards of transparency, impact assessments grounded in fundamental rights, machine learning testing of algorithms, and a relational approach to the concept of explanation, among others. Of course these suggestions are subject to judicial and administrative interpretation, as well as further regulatory measures. However, the gist of my proposal is that law can effectively regulate code, especially if the proxies of competition, data protection, intellectual assets, and fundamental rights are collectively analyzed.

Conclusions

Two decades ago, when Google introduced in Silicon Valley a then unique and innovative business model for search engines online, even its creators did not expect the profitability and potential parallel applications that would sprout from it. Google's skilled appropriation of behavior surplus allowed for a cycle of wealth highly dependent on users' dependency and trust on the platform as a source of information, in addition to an extremely disputed environment for attention to provide successful tailoring of personalized ads. The company thrived in both, effectively putting in practice Lawrence Lessig's prediction that code could actually be law (see Chapter 1).

Google's business model, based on data extraction for the creation of value, was appropriated by other tech giants, such as Facebook, and has ever since faced criticism, especially regarding concerns with the indiscriminate use of personal data to render its predictions. Google's search result page converted from a gateway to access information online to a gatekeeper that systematically hindered competition to favor the company's own ancillary businesses. The processing of automated decisions, which used to be a relatively minor concern for policy makers worldwide, gradually rose to the top of the regulatory agenda.

Alongside Google's rise to internet stardom, an increasingly regulatory tendency for digital platforms, first in Europe, then in other countries, called for more robust protection to users' fundamental rights, including privacy. Stronger standards of scrutiny were being imposed against the company by competition authorities, whose concern with Google's growing monopoly of search markets justified heavy fines and sturdy orders to reform some of its business practices.

New forms of regulation were then considered in the internet governance realm. The particularities of a decentralized online environment demanded creative solutions to issues involving jurisdictional conflicts, infrastructural compatibility, and, most of all, legal frameworks that were able to reach far beyond the borders of a state's territory. In 2018, the General Data Protection Regulation provided partial relief to some of these problems,

increasing duties for data controllers, strengthening users' rights, and introducing new mechanisms for accountability and transparency online. Other legislations followed suit, such as Regulation 2019/1150, and the current proposals for the Digital Services Act, the Digital Markets Act, and the Artificial Intelligence Act.

Meanwhile, several members of the private sector had to comply with the GDPR, even in other jurisdictions, due to its extraterritorial effects and the importance of the European market for the provision of services online. The regulation also provided a minimum adequacy standard of protection that has been inspiring other legislators to follow suit and to enact similar laws to meet this criterion and respond to its civil society appeals (see Chapter 2).

A few of the most controversial points in dispute under this new regulatory scenario are related to the implementation methods of transparency and of accountability principles, being the newly introduced right to explanation (Recital 71 of the GDPR) one of them. The gist of this mechanism, present both in the GDPR and in Convention 108+, is to provide data subjects with the reasoning behind algorithmic automated decisions regarding them. Each piece of regulation has its own parameters and frameworks of application, but the overall goal is to equip the final user of services provided online, such as Google's search engine, with answers as to what criteria were used to inform an output, thus highlighting eventual biases. Possible competitors and businesses that depend on Google's search engine would also benefit from this explanation, since the rules regarding their ranking and relevance on the results page would be more transparent.

In the case of Google's search engine, how would a proper right to explanation work in practice? Are users of the query going to be able to understand (and even see problems in) the parameters that informed their results page? These are two of the main questions this thesis aimed to find the answer to, because the common association of computer code transparency with explanation had led to some criticism regarding its insufficiency and inappropriateness.

It is precisely its business model based on algorithms protected by trade secrets, and, consequently, on the secrecy of its core intellectual assets, that provides competitiveness and market value to Google. The company's complex set of algorithmic decision-making

processes is exactly what no competitors have been able to emulate or compete with. Therefore, limiting the inscrutability nature of its intellectual asset through a right to explanation is one of the main hurdles to overcome to achieve a fair balance of interests in the platform.

Not surprisingly, companies whose whole core business model depends on the performance algorithms, which is the case of Google, are suspicious about the reach of a right to explanation, on account of the proprietary trade secrets involved in the development of these automated decisions (black boxes). A literal implementation of a right to explanation, if the concept were interpreted solely as the opening of algorithms to the public, would potentially compromise some of their most valuable intellectual assets and innovation.

However, a right to explanation as designed by recital 71 of the GDPR, is not the instant and simple solution to ensure algorithmic transparency and accountability. Although declarative in nature, the recital is not operative in EU law and thus is not fully functional and a legal tool. There are other means to achieve explanation through legal proxies in EU law, such as the ones offered by competition law, unfair commercial practices, consumer law and provisions regarding trade secrets limitation and scrutiny. The interpretation of such laws and new legislation being considered should be proceduralized with the aim of achieving a right to explanation in practice, beyond the declarative contours of recital 71. Therefore, I propose a right to explanation encompassing several domains of law, in particular, given the scope of my thesis, competition and unfair commercial practices: the Treaty on the Functioning of the European Union, the General Data Protection Regulation, Directive 2011/83/EU, Directive 2016/943, TFEU, Directive 2019/770, Convention 108+, the Charter of Fundamental Rights of the European Union, Regulation 2019/1150, Directive 2005/29/EC and the TRIPS Agreement.

Further research would certainly better analyze the judicial development of interpretations pertaining to such right to explanation over the next few years, but it is already possible to draw some conclusions and a roadmap for its implementation outside the realm of data protection law.

The cases against Google brought by the European Commission demonstrate an increasing will of the competition authority to scrutinize the company within European

borders, in different matters, from interoperability standards and bundling practices, to contractual freedom with business partners and anticompetitive practices in its vertical search. In some way, all cases involved lack of transparency of the company regarding its end users, its business partners, or its competitors. The main conclusion to be drawn is that there is a fundamental problem with Google and competition, and it stems from lack of transparency (see Chapter 3).

This may very well be a problem other tech behemoths face when they have become too big and too powerful, but it's certainly a problem for society to deal with that a lack of competition digital platforms may increase inequalities, asymmetries and, overall, reduce consumer welfare. That is why competition is at the heart of this analysis, because its secondary benefits for consumers and to markets in general are what the Treaty of the Functioning of the European Union aims, as well as the tradition of competition law within the continent.

This work is thus aimed to conceptualize law as a determining factor in the regulation of algorithms, in opposition to (computer) codes regulating societal behavior, as preconized by Lawrence Lessig's aphorism. Despite the fact that Lessig's idea was mainly centered around the notion that algorithms played one of the central roles alongside other regulating forces in the internet age, especially the ones related to copyright, there is currently an underlying assumption that algorithmic instrumentarianism became even more salient in digitized societies, that lean to a radical indifference of technological outcomes. This thesis reasserts the importance and control of law over code, by reclaiming the possibility of the first properly regulating the second, through various areas, such as competition law, intellectual property, privacy law and consumer law.

Although initially I thought of characterizing total algorithmic transparency as an appropriate tool to deal with the asymmetries between Google and its users (either end users or businesses), this initial hypothesis was debunked by proper research. Different areas of law deal with algorithmic transparency in different ways: data protection laws offer a weak right to explanation in Recital 71 of the GDPR; intellectual assets' proprietary rights impose very few limitations to the power companies hold over their trade secrets, but do not consider it an intellectual property suitable to fundamental rights' protection; competition law requires an

additional responsibility for companies in dominant positions, such as Google's, not to be abusive in their relationship with competitors; a fundamental rights-based analysis may require further balancing and proportionality exercises, in a case-by-case basis, through a functional approach, as to the standards of how secrecy can be surmounted by other rights guaranteed in the European Union's Charter of Fundamental Rights (see Chapter 4).

Even though each individual field may be insufficient to properly address all the issues arising from Google search algorithm, when combined, these four areas of law provide a roadmap of where to start: a diverse set of solutions, in different fields, to create qualified algorithmic transparency, focused on the final user of Google (consumer or business).

Although revealing algorithmic codes may not be a sufficient or ideal solution to this matter, the parameters used to make those automated decisions are. It is critical to explain which programming guidance was used to provide certain results, how personal data mattered for certain outcomes, why various competitors in the same area of business are ranked differently on Google results page, among other criteria. The answer to these questions may very well be better suited to provide reasonable and adequate explanations than an algorithmic sequence of 0s and 1s of their source code.

The nature of trade secret protection as a business' intellectual asset ought to be balanced with primary law, most noticeably, fundamental rights such as access to information, freedom of expression and the right to an effective remedy. To put this into practice, it is necessary to compare the proportionality of one measure, its alternatives, and its consequences, to see what results in the best enforcement of fundamental rights for the case at hand.

Additionally, one ought to recall that the gradual conception of the protection of intangible assets of intellectual value envisioned a balance between the public interest in eventually accessing creative works and a fair retribution for innovators. Supposing an enlargement of relative importance of trade secrets within several categories of intangible proprietary assets, it is very likely that all aspects of innovative algorithmic works be kept confidential for as long as their creators desire, which also entails a substantial amount of innovation being inaccessible to users, to competitors, and to regulators alike. When the very product of creative work impedes competition, harms public interest in fostering innovation,

including in other sectors, and also produces secondary harming effects to other actors involved, such as consumers, which may be the case of Google and its parallel applications, it is reasonable to argue that a debate on the current imbalance of intellectual assets protection in practice might be necessary, and that algorithmic innovation also ought to be subjected to greater public and judicial scrutiny.

Revisiting Lessig's idea of code shaping societal behavior at the verge of the 21st century, modernized by the recent contributions of Shoshana Zuboff's surveillance capitalism analysis (which has shaped the methodology of this thesis), we cannot help but think that law can also be code. My contention is that many steps towards that direction have already been taken and continue to be in recently proposed legislation. Robust laws in the areas of data protection, competition and consumer law now support claims that can be brought to different administrative bodies and be examined by European courts. Competition authorities have already proven they can have real consequences in the reshaping of some of these practices in the private sector, as seen in the Google cases before in the European Commission.

This thesis mapped these steps and arguments, which were systematized in the following images (methodology) and table (legal arguments and technical proposals):

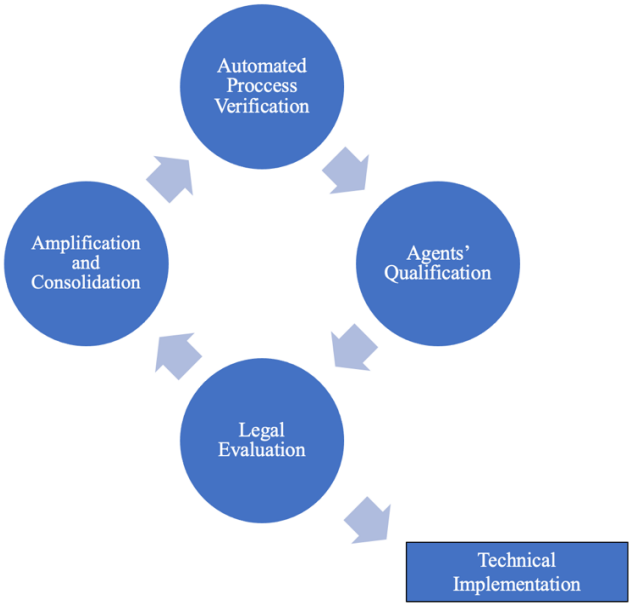

Figure 5. Right to Information Amplification and Consolidation Cycle

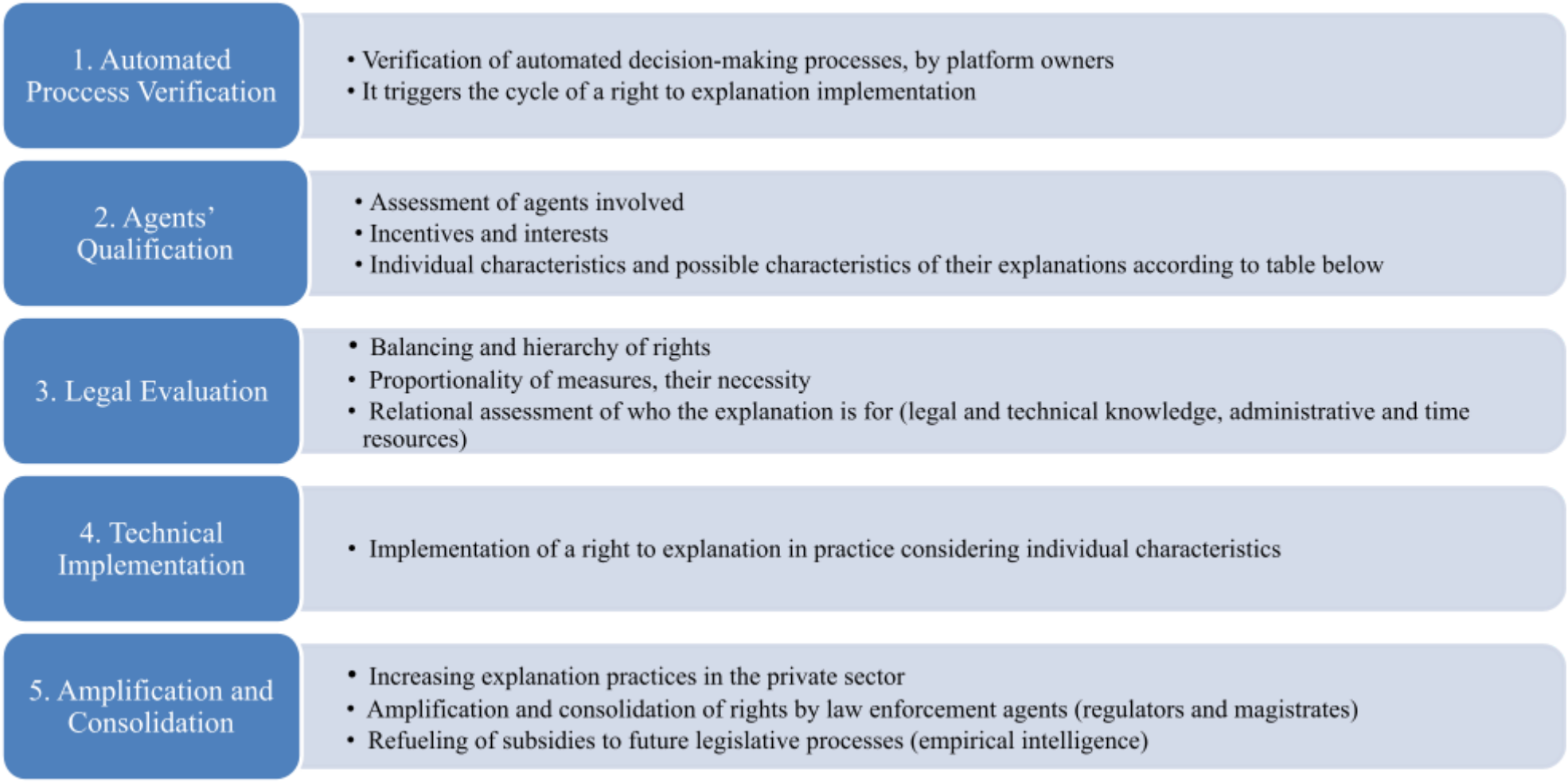

Figure 6. Methodology to Implement Right to Information Mechanisms

Agents	Incentives and Interests	Main Arguments for or against a Right to Explanation	Agent's Characteristics				Explanation's Characteristics
			Legal Knowledge	Technical Knowledge	Administrative Resources	Time Availability	
End User / Consumer	Free access to search Accessible platform services Trustworthy information online Quick and reliable searches Increased neutrality of results	**EU Primary Law** Privacy: Art. 7, Charter of Fundamental Rights of the European Union Protection of personal data: Art. 8, Charter of Fundamental Rights of the European Union Freedom of expression and access to information: Art. 11, Charter of Fundamental Rights of the European Union Non-discrimination: Art. 21, Charter of Fundamental Rights of the European Union **Secondary Law** Definition of consumers as natural persons that perform queries and navigate results from the results page: Art. 2.1, Directive 2011/83/EU Legal distinction between trade secrets and IP rights: Recitals 1, 2 and 39, Directive 2016/943 Confidentiality of trade secrets during judicial proceedings: Art. 9, Directive 2016/943 Limitations to trade secrets to safeguard users' fundamental rights: Art. 23(1)(i), GDPR Transparency: Art. 12 (1) and Recital 58 GDPR Right to explanation: Recital 71, GDPR	Low	Low	Low	Low	Explanation must be intelligible to lay users Algorithmic explainability by design Simple and understandable vocabulary, plain language Visual explanations, through icons and universally comprehensible signs Ex ante "what am I seeing" explanations Procedures to contest automated decisions

		Right to be informed: Art. 12-14, GDPR Confidentiality of trade secrets revealed in the course of some legal proceedings: Art. 9(1) and 9(2), Directive 2016/943 Disclosure that would enable the deception of consumers or consumer harm through the manipulation of search results: Art. 5.6, Regulation 2019/1150 Parameters through an easily and publicly available description, drafted in plain and intelligible language, on the online search engines of those providers: Art. 5. Regulation 2019/1150 Concise, transparent, intelligible, and easily accessible form, using clear and plain language: Art. 12, GDPR Data protection grounded in fundamental rights: Art. 25, GDPR Data Protection Impact Assessment (DPIA) contemplating risks to rights and freedoms of data subjects, Art. 35, GDPR Proportionality protecting trade secrets without jeopardising fundamental rights: Recital 21, Directive 2016/943 Information must be displayed in a clear and comprehensible manner: Art. 5, Directive 2011/83/EU Price means money or a digital representation of value: Art. 2.7 and Recital 24, Directive 2019/770 **Other Sources** Transparency as a precondition to exercise other legal rights: Guidelines on Automated Individual Decision-Making and Profiling, Article 29 Data Protection Working Party					

		Transparency and responsible disclosure for AI systems to ensure that people understand AI-based outcomes and can challenge them: OECD Principles on Artificial Intelligence Transparency and explainability: Ethics Guidelines for Trustworthy AI, European Commission's High-Level Group on Artificial Intelligence (AI HLEG) Practice of auditing algorithms to prove that they are actually performing as intended, and not producing discriminatory, erroneous or unjustified results, Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679, Article 29 Data Protection Working Party Right to obtain knowledge of the reasoning underlying data processing: Art. 9, Convention 108+ The right level of detail: 1.3.3, Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation (EU) 2019/1150 Specific considerations when identifying the main parameters: 3.3, Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation 2019/1150 Excess information can mean that, in effect, no meaningful information is provided to users: Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation 2019/1150 Good practice suggestions for controllers to consider when making solely automated decisions: Art. 22(1), Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679, Article 29 Data Protection Working Party (currently, the EDPB)					
Business User	Economic interests in	**EU Primary Law** Dominant position and abuse: Art. 101 and 102, TFEU	Reasonable	Reasonable	Reasonable	Reasonable	Reverse engineering techniques

	competing with Google Fairer competition with other businesses on Google's platform Identification of bias Fairer competition standards Mitigation of unfair commercial practices	**Secondary Law** Business users of search engines' definition: Art. 2.2, Directive 2011/83/EU Legal distinction between trade secrets and IP rights: Recitals 1, 2 and 39, Directive 2016/943 Confidentiality of trade secrets during judicial proceedings: Art. 9, Directive 2016/943 Limitations to trade secrets to safeguard users' fundamental rights: Art. 23(1)(i), GDPR Transparency: Art. 12 (1) and Recital 58 GDPR Automated individual decision-making, including profiling: Art. 22, GDPR Fairness and transparency for business users of online intermediation services: Recital 24, Regulation 2019/1150 Confidentiality of trade secrets revealed in the course of some legal proceedings: Art. 9(1) and 9(2), Directive 2016/943 Fair competition and misuse of privileged data: Art. 18(d), Regulation 2019/1150 Fairness and transparency for business users of online intermediation and online search engine services: Art. 1.1, Regulation 2019/1150 Business-to-business (B2B) relationships to favor consumers: Recitals 1 and 2, Regulation 2019/1150 Complaint-handling systems easily accessible and free of charge for business users: Recital 37, Regulation 2019/1150					Disclosure of APIs Decision-making models Datasets used Technical and complex vocabulary Main parameters of decisions Ex post "why am I seeing this" explanations Contractual assurances that algorithms are compliant with agreed standards Procedures to contest automated decisions

		Information must be displayed in a clear and comprehensible manner: Art. 5, Directive 2011/83/EU Proportionality protecting trade secrets without jeopardizing fundamental rights: Recital 21, Directive 2016/943 **Other Sources** Transparency as a precondition to exercise other legal rights: Guidelines on Automated Individual Decision-Making and Profiling, Article 29 Data Protection Working Party Transparency and responsible disclosure for AI systems to ensure that people understand AI-based outcomes and can challenge them: OECD Principles on Artificial Intelligence Transparency and explainability: Ethics Guidelines for Trustworthy AI, European Commission's High-Level Group on Artificial Intelligence (AI HLEG) Practice of auditing algorithms to prove that they are actually performing as intended, and not producing discriminatory, erroneous or unjustified results, Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679, Article 29 Data Protection Working Party Good practice suggestions for controllers to consider when making solely automated decisions: Art. 22(1), Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679, Article 29 Data Protection Working Party					
Regulators, Legislators, and Courts	Fostering consumer welfare Balance of rights	**EU Primary Law** Systematic legislative approach towards consumer law in the European Union: Art. 12, TFEU	High	High	High	High	Reverse engineering techniques

	Competition standards Increased transparency Accountability of service providers Governance of digital markets	High level of protection and scientific facts on the processes of the European Commission: Article 114.3, TFEU Trade secrets' protection: Art. 39.2, TRIPS Agreement **Secondary Law** Legal distinction between trade secrets and IP rights: Recitals 1, 2 and 39, Directive 2016/943 Confidentiality of trade secrets during judicial proceedings: Art. 9, Directive (EU) 2016/943 Limitations to trade secrets to safeguard users' fundamental rights: Art. 23(1)(i) of the GDPR Confidentiality of trade secrets revealed in the course of some legal proceedings: Art. 9(1) and 9(2), Directive 2016/943 Possibility of behavioral analysis: Art. 2 and 5, Directive 2005/29/EC Data protection grounded in fundamental rights: Art. 25, GDPR Data Protection Impact Assessment (DPIA) contemplating risks to rights and freedoms of data subjects, Art. 35, GDPR Proportionality protecting trade secrets without jeopardizing fundamental rights: Recital 21, Directive 2016/943 Factual omissions as possibly misleading: Art. 7.1, Directive 2005/29/EC **Other Sources**					Limitation of complexity in key sectors Disclosure of APIs Technical and complex vocabulary Main parameters of decisions Third-party audits Certification for processing operations under standardized procedures Codes of conduct for auditing processes involving machine learning Promoting the creation of in company ethical review boards to assess potential harms

		Transparency and responsible disclosure for AI systems to ensure that people understand AI-based outcomes and can challenge them: OECD Principles on Artificial Intelligence Transparency and explainability: Ethics Guidelines for Trustworthy AI, European Commission's High-Level Group on Artificial Intelligence (AI HLEG) Practice of auditing algorithms to prove that they are actually performing as intended, and not producing discriminatory, erroneous or unjustified results, Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679, Article 29 Data Protection Working Party Good practice suggestions for controllers to consider when making solely automated decisions: Art. 22(1), Guidelines on Automated Individual Decision-Making and Profiling for the Purposes of Regulation 2016/679, Article 29 Data Protection Working Party (currently, the EDPB)					
Google Search	Maintenance of trade secrets Competitive results of its innovation Possibility of losing its trade secrets Loss of investments in innovation	**EU Primary Law** Proprietary rights: Art. 17.1, Charter of Fundamental Rights of the European Union Trade secrets' protection: Art. 39.2, TRIPS Agreement Freedom to conduct business: Art. 16, Charter of Fundamental Rights of the European Union Right to privacy of a company: Art. 7, Charter of Fundamental Rights of the European Union **Secondary Law** Provider and online search engine definitions: Article 2.3 and 2.5, Regulation 2019/1150	High	High	High	High	Pursuant to its duty to explain, it should not be imposed on Google to reveal its algorithms' source code, except in legal cases and third-party audits, if it is strictly necessary for the purposes of such proceedings.

		Trade secret definition, Art. 2(1), Directive 2016/943 Algorithms as computer programs: Art. 8 Directive 2009/24/EC Algorithms as database rights: Art. 1.2. Directive 96/9/EC Algorithms resemble programming languages: Recital 11, Directive 2009/24/CE Confidentiality of trade secrets revealed in the course of some legal proceedings: Art. 9(1) and 9(2), Directive 2016/943 Providers of online intermediation services or of online search engines should not be required to disclose the detailed functioning of their ranking mechanisms, including algorithms: Recital 27, Regulation 2019/1150 **Other Sources** Excess information can mean that, in effect, no meaningful information is provided to users: Commission Notice Guidelines on Ranking Transparency Pursuant to Regulation 2019/1150					

Figure 6. Assessment of Agents Involved in the Right to Information Amplification and Consolidation Cycle

In conclusion, trade secrets shall be limited, as a matter of law, provided that a proportionality of legal tools and fair balancing of rights can be reached. I contend that it is possible to reach such limitations without, in order to provide sufficient information to the users, undermining completely the value of trade secrets. There are many tools that prove greater transparency, without in the same token negating the protected value covered by trade secrets. Enhanced transparency can be ensured without disclosing the whole algorithm or with prohibitive costs for the algorithm owner.

As we have seen, transparency doesn't ensure explanation. A simple and literal display of algorithmic codes would not be beneficial for the reasons a right explanation was instituted. It would not shed light upon complexity for end users and it would be adverse for competition standards. Furthermore, considering that explanation is relational, it has to be adequate for the recipients of the information regarding the algorithm. Business users, end users and competition authorities have different necessities, capacities, resources, and abilities to appropriate and process information.

Assuming preliminarily that search engines—and Google's search engine in particular—are not neutral, the rapport between different parties involved characterizes the relationship that needs to be explained. For greater transparency and accountability standards, a better assessment of the parameters surrounding these relationships needs to be achieved.

Explanation is also contextual. This means that various contexts of automated decision-making processes will demand distinct information in order to be explained. For example, issues regarding competition on Google's search engine might require greater explanation concerning the ranking of results, the exclusion of certain competitors, or even the fact that certain results are given visual prominence in relation to others.

It is worth mentioning that intellectual assets were never absolute, just like intellectual property rights also have exceptions. They are also subject to limitations and exceptionalities, including special court procedures to ensure confidentiality in the event of judicial review being necessary.

Third-party audits can also be a good solution to achieve algorithmic explainability without necessarily compromising the secret of intellectual assets of a

company. This regulatory approach is already used for risk assessments in other areas, and it can be used as a subsidiary tool, especially by competition authorities in investigative procedures.

Intellectual assets, just like intellectual property, should be limited. Provided that in balancing exercises of the Court of Justice of the European Union even intellectual property rights have been previously limited as a fundamental right, the proprietary rights of trade secrets, which do not require disclosure - a core feature of intellectual property -, have an even weaker stance against fundamental rights.

To fix these issues, the enforcement of *ex post* competition law by administrative authorities and court proceedings can be too slow and cost too much. For example, through the Directive on Damages and Competition Law, competition authorities can already enforce disclosure. However, an *ex ante* right to explanation can be quicker, by placing the burden on the company to institute explanation mechanisms for users, not the regulator.

Since there is a large asymmetry of information between automated decision-making platforms and its users, by disclosing a portion of an algorithm's inner functioning (purposes, reasoning, inputs and deciding parameters taken into consideration etc.), in an appropriate fashion to the average user for whom the explanation is aimed, it is possible to better enforce consumer welfare and safeguard competition standards. The substance of this study recognizes the importance of a right to explanation as a steppingstone for algorithmic governance, especially with regard to Google's search engine and its applications.

The practical repercussions of such a right, in the long run, may also give rise to improved accountability standards. Companies will have more appropriate tools in practice to explain their decisions for curating content, ranking it and providing answers to users. This contributes to greater intermediary liability and their central role as an access point to information online in a digitalized society.

The outcomes of this research may be applied to GAFA (Google, Amazon, Facebook and Apple), given its particularities: the ranking of apps on Apple's Store; Facebook's curation of posts; Amazon's ranking of products, among other aspects of these

platforms. Voice and home assistants like Google Home and Alexa are some of the next assets of the decade. With the transversal integration of platforms, there is immense value in the access to information by means of domestic assistants. Amazon and Google will be able to advertise and generate advertising value with information that they obtain from other platforms, like Amazon Prime, or YouTube, respectively. Entertainment habits perfectly feed the consumer habits. Therefore, these types of across-the-board integrations will be growingly more common from now on, requiring even more sophisticated analysis and explanation tools.

The idea of this work is to provide a blueprint for other fields and jurisdictions to analyze and implement right explanation strategies when it comes to automated decision-making. In practice, a holistic approach of law to achieve greater explainability in digital platforms demands the consideration of arguments from various fields, such as competition law, data privacy, the laws governing intellectual property and intellectual assets, in addition to consumer law. Hopefully, this thesis' explanations will serve as a footstep in that direction.

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