

RETHINKING COMPETITION ENFORCEMENT FOR SUSTAINABLE DATA-DRIVEN ECOSYSTEMS



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By *Emanuele Fazio*

This paper explores data-driven ecosystems as a governance model to foster informed and sustainable choices by businesses, consumers and stakeholders. Data-driven ecosystems have a pivotal role in ensuring the EU's twin transition objectives of digitalization and sustainability. However, these ecosystems face challenges in achieving the transition targets. These challenges are related to the environmental impacts of their consumption and the businesses' reluctance to share data. To address these challenges and consider the interplay between digitalization and sustainability, the EU approach calls for the alignment of all policies, including competition. Consequently, EU competition policy and enforcement are undergoing a comprehensive revision process to complement regulatory initiatives. Recent revisions in competition law, such as the 2024 Revised Notice on the Definition of the Relevant Market, highlight the integration of sustainability and digital considerations into competition enforcement. However, to fully leverage the potential of sustainable data-driven ecosystems, it is necessary to rethink competition enforcement. Analytical tools and shortcuts must evolve to consider the interplay between digitalization and sustainability. Although analytical tools are going to consider the digital and sustainability effects of data-driven ecosystems, analytical shortcuts have yet to evolve accordingly. The author stresses that the evolution of economic premises, proxies and presumptions is crucial to leverage the potential of sustainable data-driven ecosystems within competitive markets.

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I. LEVERAGING DATA-DRIVEN ECOSYSTEMS FOR THE EUROPEAN UNION'S TRANSITION OBJECTIVES

Through various initiatives, the European Union's "twin" digital and green transitions pursue a simultaneous increase in digitalization and sustainability. The Digital Decade Policy Program 2030² and related strategies, such as the European Data Strategy,³ highlight the need for increased availability of data to train AI systems and foster technologies for the benefit of citizens, businesses and public administrations. On the other hand, the European Green Deal ("EGD")⁴ and associated green strategies strive to achieve climate neutrality by 2050,⁵ delineating a comprehensive pathway for sustainability in the EU's economy and society. While the transition initiatives operate independently, they are interconnected and influence one another.

Digital technologies underpin both the Digital Decade Policy Program 2030 and the EGD's program to enhance digitalization and sustainability in the EU's competitive economy and society.⁶ To monitor the progress toward sustainability through digitalization, the EU Commission has adopted the Information Communication Technology ("ICT") indicator for environmental sustainability as part of its Digital Economy and Society Index ("DESI"). The indicator gauges the percentage of enterprises undertaking medium- or high-intensity green actions via ICT.⁷ The level of intensity is based on the number of green actions facilitated by the adoption of ICTs, such as the development of climate-neutral, energy-saving, high-efficiency and interconnected services, as well as the reduction of the use of materials, equipment or consumables.

Although the concept of ecosystems originated in biology, it has gained increasing attention in management literature and has expanded into the social sciences.⁸ Despite its growing use and popularity, the precise definition of "ecosystem" continues to be debated.⁹ This paper will rely on Michael G. Jacobides & Ioannis Lianos' research, which described ecosystems as having common features such as the co-evolution of the collaborating actors under an aligned vision, modularity, interdependencies and non-generic technological complementarities that bind together ecosystem participants. In the context of the transitions, "data-driven ecosystems" refer to data assets that are available to a network of stakeholders, including producers, suppliers, competitors, and consumers.¹⁰ These data assets facilitate the leveraging of each participant's actions to derive value from online and/or offline interactions.

Expanding on the ecosystems approach of the management literature, this paper considers data-driven ecosystems as an alternative mode of governance that departs from full integration or arm's-length contracts in achieving the transitions' targets. This governance model allows participants to collaborate independently, exchange resources and knowledge, and engage in joint problem-solving, thereby fostering agility, innovation, and competitiveness. For instance, collaborative processing of personal and non-personal data can support tracking consumer preferences and product supply chains. This can provide credible and reliable information that empowers businesses, consumers and other stakeholders to make informed and sustainable choices, even without unified governance. Participants can exert significant influence on technological, economic and social changes by leveraging their data-driven ecosystems. This approach can yield increasing benefits, transcending

2 This paper is part of a chapter in MY DATA IS MINE—AI, DATA PROTECTION, AND A DIGITAL SOCIETY (Giuffrè, 2024), which will be presented at the Privacy Symposium in Venice in June 2024. I sincerely thank Prof. Edoardo Chiti and Dominic James Stanley for their valuable comments and support. Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030 [2022] OJ L 323/4, ("Digital Decade Policy Programme 2030"), Article 4; Commission Implementing Decision (EU) 2023/1353 of 30 June 2023 setting out key performance indicators to measure the progress towards the digital targets established by Article 4(1) of Decision (EU) 2022/2481 of the European Parliament and of the Council [2023] OJ L 168/48.

3 Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A European Strategy for data," COM(2020) 66 final, ("European Data Strategy").

4 Commission, "Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - The European Green Deal," COM(2020) 640 final, ("The European Green Deal").

5 Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) 401/2009 and (EU) 2018/1999 [2021], OJ L 243/1 ("European Climate Law"), Article 1.

6 Digital Decade Policy Programme 2030, *supra* note 2, Article 3(c)(e)(h); The European Green Deal, *supra* note 4, at 4.

7 Commission, Digital Economy and Society Index (DESI 2022), at 47-48.

8 Jack Fuller, Michael G. Jacobides & Martin Reeves, *The myths and realities of business ecosystems*, SLOAN MANAGEMENT REVIEW (2019). The term "ecosystem" in management literature can be traced back to James F. Moore, *Predators and prey: A new ecology of competition*, HARVARD BUSINESS REVIEW 75 (1993).

9 Michael G. Jacobides & Ioannis Lianos, *Ecosystems and competition law in theory and practice*, INDUSTRIAL AND CORPORATE CHANGE (2021) at 1200.

10 Compare with the ecosystem definition provided by Michael G. Jacobides, Carmelo Cennamo & Annabelle Gawer, *Towards a theory of ecosystems*, STRATEGIC MANAGEMENT JOURNAL (2018), at 2256.

each individual ecosystem and contributing to the achievement of desired outcomes.¹¹ Therefore, data-driven ecosystems should be regarded as a cornerstone for advancing the EU's digital and green transformation.

The interaction between the digitalization of the EU's economy and society and the green transition is of paramount importance. Digitalization catalyzes the pathway for sustainability, acting as a "key enabler" of the green transition.¹² The free flow of data and the increased use of ICT, including artificial intelligence, can enhance the likelihood of success for policies addressing climate change.¹³ However, digitalization must prioritize sustainability while pursuing both the digital and green transitions.¹⁴ The growing use of digital technologies, especially data management systems, carries the risk of higher energy and water consumption and increased greenhouse gas emissions. Hence, digital and data-related practices should promote a digital and climate-neutral economy while prioritizing their inherent sustainability.

To enhance the synergies between the digital and sustainable transformations, both the Digital Decade Policy Program 2030 and EGD advocate for the alignment of all EU policies, including competition.¹⁵ Consequently, competition policy and law are currently undergoing an unprecedented revision process to complement the EU's transition initiatives through their broad implementation, i.e., including enforcement.¹⁶ More precisely, the Commission has broadened the scope of pro-competitive disciplines to take into account digital and green benefits while improving privacy protection and sustainability. This review process seeks to ensure that competition law is proactively applied in alignment with the EU's vision for the future.

This paper analyzes the role of competition enforcement in ensuring the coherent and effective implementation of the digital and sustainable transformation. The research methodology is primarily doctrinal, focusing on the EU Data Strategy and the complementary application of competition law to address data-related challenges. The study delves into the challenges of sustainable data-driven ecosystems (Section II) and the complementary role of competition enforcement in tackling these challenges (Section III). Despite the increasing integration of social and environmental considerations in competition law, this paper stresses the need for further operationalization. To address this need, the paper explores analytical shortcuts that can be rethought by undertakings and competition authorities.

II. CHALLENGES IN THE DEVELOPMENT OF SUSTAINABLE DATA-DRIVEN ECOSYSTEMS

The EU Data Strategy highlights the pivotal role of data as a critical asset for economic development and social, environmental and climate solutions.¹⁷ Access to vast amounts of high-quality data is essential for training AI systems and other ICT, as well as for monitoring and customizing production processes.¹⁸ However, aligning the development of data-driven ecosystems with the twin transitions faces two major and somewhat interrelated challenges. The first challenge pertains to the environmental impacts of higher consumption of energy and water, along with increased greenhouse gas emissions. The second challenge revolves around the reluctance of businesses to share their collected data.

The first challenge stems from the escalating computational demands and infrastructural requirements associated with expanding data volumes. The substantial energy consumption inherent in data processing, as well as the increased use of resources, holds the potential to exacerbate greenhouse gas emissions, thereby contributing to climate change. Notably, the ICT sector accounts for approximately 5 to 9 percent

11 MARCO IANSITI & ROY LEVIEN, *THE KEYSTONE ADVANTAGE: WHAT THE NEW DYNAMICS OF BUSINESS ECOSYSTEMS MEAN FOR STRATEGY, INNOVATION, AND SUSTAINABILITY* (Harvard Business Review Press, 2004), at 211-224.

12 Digital Decade Policy Programme 2030, *supra* note 2, Recital 6; The European Green Deal, *supra* note 4, at 4, 7 and 9; Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Shaping Europe's digital future", COM(2020) 67 final, ("Shaping Europe's digital future"), at 11.

13 Digital Decade Policy Programme 2030, *supra* note 2, Recital 6; The European Green Deal, *supra* note 4, at 9.

14 *Id.*; Shaping Europe's digital future, *supra* note 12, at 12.

15 Digital Decade Policy Programme 2030, *supra* note 2, Recital 3; The European Green Deal, *supra* note 4, at 3.

16 Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A competition policy fit for new challenges," COM(2021) 713 final, ("A competition policy fit for new challenges").

17 European Data Strategy, *supra* note 3, at 2-3; European Parliament and Council Regulation (EU) 2023/2854 of 13 December 2023 on harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 [2023] OJ L 2023/2854 (Data Act), Recital 1; Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 [2022] OJ L 152/1, (Data Governance Act), Recital 2; Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 [2022] OJ L 265/1, (Digital Markets Act), Recital 3.

18 European Data Strategy, *supra* note 3, at 2-3; DESI 2022 *supra* note 7, at 51.

of global electricity consumption, generating over 2 percent of global emissions. In the EU, data centers consumed 76.8 TWh of energy in 2018, with projections indicating an increase to 98.5 TWh by 2030. In relative terms, data centers accounted for 2.7 percent of electricity demand in the EU in 2018 and, on the current trajectory, are forecasted to account for 3.21 percent by 2030.¹⁹

While demand for data center services has been increasing significantly, energy consumption and emissions have only risen moderately, with the exception of crypto mining.²⁰ This positive trend can be attributed to the gradual substitution of coal and other fossil fuels with less carbon-intensive energy sources. Additionally, innovative and energy-efficient solutions have been introduced and implemented in IT hardware and cooling systems, alongside a gradual transition toward more efficient cloud and hyperscale data centers.²¹ To foster this trend, the EU institutions are exploring the potential of experimentalist governance mechanisms and competition law in promoting the adoption of standards, codes of conduct, soft law and tertiary measures incentivizing the development of sustainable data-driven ecosystems.²² Specifically, the EU's vision encompasses co-investments for developing cloud-to-edge services, enhancing the interconnection of existing data-processing capacities and establishing support for data sharing.

Concerns surrounding data-sharing practices constitute the second challenge faced by sustainable data-driven ecosystems. Data-sharing facilitates innovation, cost reduction and personalized services and goods. Moreover, by promoting data reuse and enhancing service and product quality, it can reduce CO2 emissions and strengthen supply chain oversight, among other benefits.²³ Despite the evident digital and sustainability advantages of data access, only a limited number of companies engage in data sharing or pooling. This phenomenon, known as the “data-sharing paradox,” illustrates the tension between the increasing value of data to the EU's economy and society and businesses' reluctance to share their collected data.

The data-sharing paradox affects business-to-business (“B2B”), government-to-business (“G2B”) and business-to-government (“B2G”) transactions.²⁴ In accordance with the data regulatory framework, the goal is to make data available to any private and public entity to foster innovation, competition and realize the social and environmental benefits of data-driven ecosystems.²⁵ The EU's approach to creating a single European data space, comprising several common EU data spaces,²⁶ has evolved from an individualistic human-centered perspective to a broader societal one. This broader perspective necessitates the support of all EU policies to incentivize data sharing, including competition policy.

To fully realize the potential of sustainable data-driven ecosystems without creating distortions in competitive markets, it is important to continue considering competition in transition initiatives. Nonetheless, competition policy and enforcement can complement the regulatory frameworks in addressing the challenges of sustainable data-driven ecosystems. Its flexible and case-by-case approach can signal investment incentives toward technologies and collaborative practices supportive of the transitions' objectives. It can encourage businesses to utilize data resources efficiently, avoid stranded assets and innovate production processes toward greater digitalization and sustainability. Thus, competition enforcement should take into account the broader objectives of the twin transitions in its assessments.

III. EXPLORING A NEW PATHWAY IN COMPETITION ENFORCEMENT: PRELIMINARY EVIDENCE AND SUGGESTIONS

Competition law is currently undergoing a comprehensive revision process to achieve the twin transitions' targets and overcome the challenges of sustainable data-driven ecosystems.²⁷ This raises questions about its “traditional” characteristics and assessments of market power effects.

19 See Commission, *Commission takes first step towards establishing an EU-wide scheme for rating sustainability of data centers* (2023), https://energy.ec.europa.eu/news/commission-takes-first-step-towards-establishing-eu-wide-scheme-rating-sustainability-data-centres-2023-12-12_en.

20 Vida Rozite, Emi Bertoli & Brendan Reidenbach, *Data Centres and Data Transmission Networks*, IEA (July 11, 2023), <https://www.iea.org/reports/data-centres-and-data-transmission-networks>; JEREMY RIFKIN, *GREEN NEW DEAL – IL CROLLO DELLA CIVILTÀ DEI COMBUSTIBILI FOSSILI ENTRO IL 2028 E L'AUDACE PIANO ECONOMICO PER SALVARE LA TERRA* (Mondadori, 2021), at 57-67.

21 *Id.*

22 European Data Strategy *supra* note 3, at 9, 10 and 16.

23 See Marco Botta, *Shall we share? The principle of FRAND in B2B data sharing* (RSC 2023/30 Working Paper, 2023), at 18-19.

24 *Id.*, at 7-9.

25 European Data Strategy *supra* note 3, at 1.

26 Commission, “Staff Working Document on Common European Data Spaces,” SWD(2022) 45 final.

27 A competition policy fit for new challenges, *supra* note 16.

For instance, the Commission has recently revised the relevant market definition for the first time since 1997. Moreover, it has launched initiatives to clarify exclusionary abuse of dominance and updated the horizontal and vertical agreements guidelines to underscore the importance of pro-competitive agreements that provide digital and sustainability benefits. Similarly, on the State Aid front, the Commission has reviewed Block Exemption Regulations and State Aid Guidelines with the aim of directing private and public investments toward digital and sustainable infrastructures.²⁸

This revision process calls into question the scope, breadth and even fundamental concepts of competition enforcement.²⁹ The traditional approach to enforcing competition law is often presented as “objective” over time. However, this perception ignores the complex interplay between policy needs and regulatory frameworks that have influenced the evolution of competition enforcement in different historical contexts. The “objective” conception of competition law is incompatible with the changing nature of competition.³⁰ Although the traditional approach may appear stable, it is intrinsically linked to socio-political needs. In addressing the contemporary demands of the twin transitions, however, the inadequacies of traditional competition law paradigms have become increasingly evident. The unprecedented challenges posed by digitalization and sustainability necessitate a rethinking of competition enforcement concepts.

A. Beyond “Price”: The New Relevant Market Definition

In order to determine whether market power exists or has the potential to exist, undertakings and competition authorities typically follow a two-step procedure. Firstly, the relevant market in which market power may exist must be defined. Although not mandatory in all competition enforcement, this initial step requires the definition of the product and geographic market.³¹ Secondly, market power must be identified within the defined relevant market.³² The definition of the relevant market is an important analytical tool to assess whether undertakings have or would have market power. It is important to delineate the relevant market, for instance, to assess whether an agreement restricts competition within the meaning of Article 101 TFEU or whether an undertaking holds a dominant position under Article 102 TFEU.

The Commission’s Notice on the Definition of the Relevant Market provides valuable guidance on the identification of the relevant product and geographic markets. The notice aims to increase transparency in the Commission’s competition policy and decision-making processes. This helps businesses self-assess their competitive strategies, such as entering into specific agreements or engaging in unilateral conduct.³³ So far, the Small but Significant Non-transitory Increase in Price (SSNIP) test has been used to determine whether certain products fall within the same relevant market.³⁴ This test is based on the price of services and goods, which is the most straightforward parameter for delineating market boundaries. However, the Notice, which was originally issued in 1997, has recently been revised to align with the demands of digitalization and sustainability. This revision is the first step in rethinking competition enforcement to support the twin transitions.

The Commission published the Revised Notice on the Definition of the Relevant Market on 8 February 2024. The Revised Notice harmonizes the relevant market definition with the contemporary Commission practice, EU court rulings and evolving market dynamics, notably digitalization and sustainability.³⁵ It is notable that it stresses the importance of transcending the price parameter to identify relevant markets, in particular in cases of “digital ecosystems.” Specifically, it underscores the role of “innovation” and “quality” in services and goods, encompassing aspects like privacy protection and sustainability.³⁶ This marks the first explicit acknowledgment of privacy protection and sustainability as part of the “quality” parameter of competition.

28 To better understand the ongoing process of revising competition policy and law, see Klaudia Majcher & Viktoria H.S.E. Robertson, *The Twin Transition to a Green and Digital Economy: The Role for EU Competition Law*, (Graz Law, Working Paper No 05-2022); Emanuele Fazio, *Adapting Competition Law to the Digital Transition. Two Challenges*, EUROPEAN PAPERS, 981 (2022).

29 See Cristina Caffarra, “Power, not Price”: On the Antitrust Agenda for the “Next World Order,” CPI EUROPE COLUMN (February 14, 2024), https://www.pymnts.com/cpi_posts/power-not-price-on-the-antitrust-agenda-for-the-next-world-order/.

30 Konstantinos Stylianou & Marios Iacovides, *The goals of EU competition law: a comprehensive empirical investigation*, 42(4) LEGAL STUDIES, 620 (2022); Mario Libertini, *Concorrenza*, ENCICLOPEDIA DEL DIRITTO, ANNALI, III (Milano 2010).

31 Commission, “Notice on the definition of the relevant market for the purposes of Community competition law” [1997] OJ C 372 (1997 Notice on Market Definition), §§ 7-8.

32 Richard Whish & David Bailey, *COMPETITION LAW* (10 ed. 2021), at 26-48.

33 *Id.*, §§ 4-5.

34 *Id.*, §§ 15-17.

35 Commission, “Notice on the definition of the relevant market for the purposes of Union competition law” C(2023) 6789 final (2024 Revised Notice on Market Definition).

36 *Id.*, §§ 15, 27, 50 and 90.

The application of the SSNIP test becomes challenging in innovative contexts of zero-monetary-price products, such as those related to data collection and processing. To address data-driven ecosystem challenges, the 2024 Revised Notice on Market Definition proposes the use of the Small but Significant Non-transitory Decrease of Quality (SSNDQ) test.³⁷ The EU General Court has recently stated that a precise quantitative measure of product degradation is not obligatory for the SSNDQ qualitative test despite the inherent risk of subjective evaluations.³⁸ Imposing a precise standard of quality degradation for the SSNDQ test would render it unduly burdensome and impractical. The only requirement is that “the quality degradation remains small, albeit significant and non-transitory.”³⁹ Moreover, it is important to stress that even the SSNIP test provides subjective assessments of the relevant market in certain sectors, for instance where price information regarding substitutability is unavailable.⁴⁰ Therefore, the advancement or degradation in digitalization and sustainability, resulting from the leveraging of data-driven ecosystems, appear to be included in the 2024 Revised Notice and can be considered a valuable addition to the competition enforcement toolkit.

B. Advancing the Operationalization Through “Digital Analytical Shortcuts”

The 2024 Revised Notice on Market Definition is an important analytical tool for identifying market power, but it is not an end in itself.⁴¹ Competition law has to deal with the issue of “spontaneity”⁴² to realize the benefits of digitalization and sustainability without distorting the competitive process. Given the challenges stemming from the complexities of spontaneous order, other analytical tools are available to guide individuals and authorities in decision-making. These are based on analytical shortcuts - techniques used in competition enforcement to streamline complex facts and achieve objectives, providing an alternative approach to more time-consuming methods of analysis.⁴³

Competition law includes various analytical tools that rationalize and simplify enforcement, such as notices, guidelines, block exemption regulations, commitment procedures, statements of objections and interim measures. These tools and procedures simplify the enforcement process based on analytical shortcuts, such as “premises,” “proxies” and “presumptions.”⁴⁴ In the current revision process, other analytical tools have been updated to operationalize the interplay between digitalization and sustainability of data-driven ecosystems. Despite this remarkable achievement, it is also necessary to rethink analytical shortcuts to fully realize the potential of sustainable data-driven ecosystems.

Taking the latest guidelines on cooperation agreements as an example, it is noteworthy that the EU’s revision approach consists of relaxing competition rules to foster digital and sustainability benefits.⁴⁵ For instance, vertical agreements involving dual distribution have been exempted from traditional prohibitions under certain conditions. Dual distribution refers to suppliers selling their services or goods both upstream and downstream, thereby competing with their independent distributors.⁴⁶ In these cases, the potential negative effects of the vertical agreement on the competitive relationship between the supplier and buyer at the downstream level are deemed less significant than the potential positive impact on competition in general.⁴⁷ Similarly, data sharing between suppliers and buyers can enhance the pro-competitive effects of vertical

37 *Id.*, § 30.

38 Case T-604/18 Google LLC and Alphabet, Inc. v European Commission [2022] ECLI:EU:T:2022:541, §§ 177-180.

39 *Id.*, § 180.

40 Whish & Bailey, *supra* note 32, at 35.

41 *Id.*, at 46-48.

42 Vincent Ostrom used the term “spontaneity” to mean that “patterns of organization within a polycentric system will be self-generating or self-organizing” in the sense that “individuals acting at all levels will have the incentives to create or institute appropriate patterns of ordered relationships.” Ioannis Lianos, *Polycentric Competition Law*, 71 CURRENT LEGAL PROBLEMS (2018); Paul D. Aligiga & Vlad Tarko, *Polycentricity: From Polanyi to Ostrom, and Beyond*, 25 GOVERNANCE, (2012) at 246-247.

43 Compare with Andriani Kalintiri, *Analytical Shortcuts in EU Competition Enforcement: Proxies, Premises, and Presumptions*, 16(3) JOURNAL OF COMPETITION LAW & ECONOMICS (2020), at 392-393.

44 “Premises” refer to normative and economic assertions or propositions, which form the basis for a choice or a theory. They shape competition enforcement in many ways. For instance, the dominant premises steer administrative action and lead authorities to develop policy priorities. “Proxies” may be defined as metrics adopted to provide indirect and imperfect approximations of the investigated issues. They have two important roles in competition enforcement: enforcers use them to draw inferences from the available evidence and to develop filters and screens with a view to demarcating lawful from unlawful conduct. Finally, “presumptions” allow for an unknown fact to be deemed as demonstrated based on proof of another fact. They enable the actor with the burden of persuasion about an issue to provisionally discharge it by providing proof of another issue to the standard of proof. Although premises, proxies, and presumptions are distinct, they are used in combination as well as in parallel. Moreover, they may be replaced over time in line with developments in knowledge and shifts in the contextual environment within which competition is enforced, such as digital and sustainability contexts. *Id.*, at 396-398.

45 Commission, “Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal cooperation agreements,” [2023] OJ C 259 (Guidelines on horizontal cooperation agreements); Commission, “Guidelines on vertical restraints,” [2022] OJ C 248 (Guidelines on vertical restraints).

46 Commission Regulation (EU) 2022/720 of 10 May 2022 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of vertical agreements and concerted practices [2022] OJ L 134/4, (VBER), Recital 12.

47 Guidelines on vertical restraints, *supra* note 45, §§ 8, 144 and 316.

agreements, especially in the optimization of production and distribution systems. However, some information exchanges may raise concerns regarding horizontal competition.⁴⁸ Therefore, data-sharing between suppliers and buyers in a dual distribution scenario is only exempted when the exchange of information is directly related to the implementation of the vertical agreement and is necessary to improve the quality of production or distribution of services and goods.⁴⁹

The latest updates on State aid controls have similarities with the new direction of antitrust rules.⁵⁰ They advocate indeed for the allocation of both private and public investments toward digital and sustainable infrastructures. The aim is to enable breakthrough innovations and large-scale investments in order to meet the targets of the twin transitions.⁵¹ This approach will incentivize resource allocations toward projects that promote innovation, digitalization, and sustainability, ultimately contributing to the development of more sustainable data-driven ecosystems. In line with the initiatives on cooperation agreements, the revision of State aid frameworks amounts to an increased relaxation of prohibitions.⁵² For instance, under Article 107(3) TFEU, the Commission can approve public investments that fund multi-purpose data infrastructures to support the interplay between digitalization and sustainability.⁵³

Despite the centrality of the analytical tools in facilitating the interplay between digitalization and sustainability, legal and economic reasoning has yet to evolve accordingly to promote sustainable data-driven ecosystems. Competition enforcement can support the intertwining of digital and sustainable effects of data-driven ecosystems. This paper has already noted the changing normative premises of competition enforcement, which are going to take innovation, privacy protection and sustainability into account. The economic analysis of the pro- and anti-competitive effects should consider the normative changes, especially in terms of data regulations and sustainability goals. In the author's view, neither competition law nor economic analysis are indeed independent of normative influence.⁵⁴ Consequently, economists should consider the contemporary goals of data regulations and sustainability that stand out in the new competition policy, regulations and tertiary measures.

Changing normative and economic premises provide the foundation for exploring new proxies that assess the potential for digital and sustainability impacts of data-driven ecosystems. Competition enforcement relies on numerous general concepts that are difficult to establish directly, such as “abuse,” “restriction,” “indispensability,” and others.⁵⁵ For instance, the “indispensability” criterion of anti-competitive agreements requires a proxy that can demonstrate situations where undertakings' incentives to innovate may be undermined.⁵⁶ In the context of data disputes, an opportunity exists to rethink this requirement through the lens of digital and sustainable considerations, thereby leading to the development of sustainable data-driven ecosystems. Such a paradigm shift can have significant implications for the collection and processing of data, as it can promote the adoption of collaborative and climate neutral practices that ensure the long-term sustainability of data-driven ecosystems.

Rebuttable presumptions imply that conducts are presumed to be anti-competitive unless challenged with supporting evidence.⁵⁷ Obstacles to data-sharing practices that hinder digitalization and sustainability should be presumed unlawful, requiring undertakings to provide supporting evidence of their conduct. In addition, commitment procedures, statements of objections and interim measures can assist in the implementation and monitoring of ongoing solutions that involve stakeholders and third parties when the effect of data-related practices is uncertain. According to the author, the analytical shortcuts should evolve alongside the analytical tools to fully leverage the potential of sustainable data-driven ecosystems.

48 Guidelines on horizontal cooperation agreements, *supra* note 45, Section 6.

49 VBER, *supra* note 46, Recital 13.

50 For instance, see Regulation (EU) 2021/1153 of the European Parliament and of the Council of 7 July 2021 establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No 283/2014 [2021] OJ L 249.

51 A competition policy fit for new challenges, *supra* note 16, at 17-18.

52 *Id.*

53 Regulation (EU) 2021/1153, *supra* note 50, Recitals 1 and 43, along with Articles 8 and 9.

54 Ariel Ezrachi, *EU Competition Law Goals and The Digital Economy*, (Oxford Legal Studies, Research Paper No 17/2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3191766, at 15-16 and 22-23.

55 Kalintiri, *supra* note 43, at 401.

56 *Id.*, at 402; Whish & Bailey *supra* note 32, at 162-173.

57 For instance, see Case C-413/14 P *Intel v. Commission* [2017] ECLI:EU:C:2017:632, § 138.



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