

RESTRICTIONS OF COMPETITION IN PRIVATE BLOCKCHAINS: REFUSAL TO DEAL

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ABSTRACT *This paper will discuss how a refusal to access a Private Blockchain can be considered an abuse of dominant position under 102.º TFEU. For that matter, we will analyze how the EU institutions have distinguished different types of refusals and how they have been qualified as abuses. Additionally, we will go through the specific characteristics of private blockchains that facilitate the emergence of exclusionary abuses and review the concepts of market definition and dominant position applied to the blockchain technology. Finally, we will conceptualize possible refusals to deal in private blockchain systems, inspired by real case uses, and explore “data privacy” as a potential objective justification. We argue that the user’s interest in maintaining data privacy should not prevail over the development of a secondary market in the blockchain system and that data privacy may, in principle, be ensured through technical changes. Therefore, data privacy should not be admitted as an objective justification.*

SUMMARY 1. Introduction. 2. Refusal to Deal under EU Competition Law. 2.1. The first cases of Refusal to Deal. 2.2. The late development of the Essential Facility Doctrine in Europe. 2.3. Refusal of Intellectual Property Rights. 2.4. Ladbroke, Bronner and IMS Cases. 2.5. Microsoft Case. 2.6. Preliminary conclusion. 3. Blockchain. 3.1. The Technology behind Blockchain. 3.2. The origin of Blockchain. 3.3. Private Blockchains. 4. Refusal to Deal in Private Blockchains. 4.1. Definition of a Relevant Market and a Dominant Position in the Blockchain Technology. 4.2. Refusal of access to a Private Blockchain as an abuse of dominance under 102.º TFEU. 4.3. Possible objective justifications. 5. Conclusion.

KEYWORDS Competition Law; Refusal to Deal; Refusal of access to a Private Blockchain; Abuse of dominance; Dominant Position; Market Definition; Blockchain; Private Blockchains; Essential Facility doctrine; Objective Justifications; Data privacy; Data Protection.

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1. INTRODUCTION

As Margrethe Vestager¹ once said: “*Digitalisation is reshaping every part of our economy and society, so that today, there are really only two types of business – those that have gone digital, and those that soon will.*”².

Recently, the development of technology lead to the creation of Blockchain, a distributed ledger technology that can ensure trust without the need of intermediaries, through a network validation system, while still being able to protect users’ identities through cryptographic records³. This is a place where fintech companies and traditional companies seek out to improve their businesses, by increasing efficiency, transparency, and security, or create new ones inside the technology where consumers are paying for products and services with digital currency.

Blockchain allows companies to perform tasks such as transfer of money, information storage, execution of contracts and the authentication of property, becoming, thus, useful in many sectors, namely, bank and insurance, energy, transportation, food-chains and health care services⁴.

Most competition authorities have, until now, been oblivious (or uninterested) to the capabilities of this technology in establishing competitive environments between undertakings. This “underground” environment creates business opportunities for companies that desire to flourish under the radar, with no market regulation. In response, scholars have developed their studies around the label of “Blockchain Antitrust”⁵, where competition issues regarding this technology are being analysed.

Blockchain is originally decentralized, meaning it does not rely on a single person or small group of people, but in the global network of users. However, blockchains can be centralized, especially in private systems, where one can only access with a permission from an administrator or small group of users who dictate the protocols on that digital space. These are called Private Blockchains⁶.

1 Competition Commissioner of the European Commission and Executive Vice-President (2019-2023).

2 Speech on “*Dealing with mergers in a digital age*”, 18 June 2019, available on: [https://uk.practicallaw.thomsonreuters.com/w-020-8700?transitionType=Default&contextData=\(sc.Default\)&firstPage=true](https://uk.practicallaw.thomsonreuters.com/w-020-8700?transitionType=Default&contextData=(sc.Default)&firstPage=true).

3 Maggiolino & Zoboli, 2021: 5.

4 *Ibidem*; Hileman & Rauchs, 2017: 38; Sharma *et al*, 2021: 673-682.

5 Schrepel, 2019-2020:161.

6 Schrepel, 2021:147.

Given the nature of these systems, many authors have equated the possibility of “refusals to deal” in private blockchains⁷. However, it appears as though no one has addressed this issue extensively.

In this context, this Article aims to take a step further and demonstrate how a refusal to access a Private Blockchain can be considered an abuse of dominance under 102.^o TFEU. For that matter, we’ll analyse how the EU institutions have distinguished different types of refusals and how they have been qualified as abuses. Additionally, we’ll go through the specific characteristics of private blockchains that facilitate the emergence of exclusionary abuses and review the concepts of market definition and dominant position applied to blockchain technology. Finally, we’ll conceptualize possible refusals to deal in private blockchain systems, inspired by real case uses, that may qualify as an abuse of dominant position under European competition law and explore “data privacy” as a potential objective justification.

2. REFUSAL TO DEAL UNDER EU COMPETITION LAW

Article 102.^o TFEU condemns unilateral conduct of dominant firms which act in an abusive manner within the internal market of the European Union or a substantial part thereof, insofar as it may affect trade between Member States. This Article applies to behaviours susceptible of affecting consumers and other economic agents – such as competitors –, against methods not based on merit and fairness⁸.

The pursuit of a dominant position on a market, through fair business strategies, is not condemnable under EU competition law. The prohibition rather lays on the abuse of that position⁹. The notion of abuse has been defined by the ECJ as “*an objective concept¹⁰ relating to the behaviour of an undertaking in a dominant position which is such as to influence the structure of a market where, as a result of the very presence of the undertaking in question, the degree of competition is weakened and which, through recourse to methods different from those which condition normal competition in products or services on the basis*

7 E.g.: *Idem*: 145-146; Hutchinson & Egorova, 2020: 94-95; Kim & Justil, 2018:13-15; Schöning & Tagara, 2019:58-60.

8 Moura e Silva, 2018: 879.

9 Korah, 1994: 83, *cit* by Etro & Kokkoris, 2010: 21; Gorjão-Henriques, 2019: 671-679.

10 In which guilt proof is not necessary and the company’s non-intention of committing the abuse is irrelevant to the analysis of the existence of an abuse (although it could be relevant to the level of fine). See: Moura e Silva, 2018:914; Whish & Bailey, 2021: 199.

*of the transactions of commercial operators, has the effect of hindering the maintenance of the degree of competition still existing in the market or the growth of that competition*¹¹.

Such abuse may consist in: (a) directly or indirectly imposing unfair purchase or selling prices or 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.¹² This list does not represent an exhaustive catalogue of what amounts to abusive behaviour, rather it endorses a general clause¹³. In particular, this list does not mention “refusal to deal”/ “refusal to supply” as an abuse, although it’s an established type of abuse by the EU Institution’s practice¹⁴.

Given its ability to eliminate competition, “refusal to deal” is considered an exclusionary abuse¹⁵. While many exclusionary abuses focus on “horizontal foreclosure” (e.g., exclusive purchasing agreements, rebates and predatory pricing), others are mainly related to the impact of competition in the downstream market¹⁶, which is the case for refusals to supply¹⁷.

11 C-85/76, *Hoffman-La Roche*, EU:C: 1979:36, §91 ; C-322/81, *Michelin*, EU:C:1983:313, §54; *Junqueiro* 2012: 90-91; Whish & Bailey, 2021: 197.

12 Article 102.º TFEU.

13 Moura e Silva, 2018: 203; Whish & Bailey, 2021: 198.

14 Other jurisdictions have, instead, expressly predicted it in their national competition legislations, such as Portugal, in Law n.º 19/2012, 08 May 2012, Article 12.º, n.º 2, (e): “*Refuse access to a network or other essential infrastructure controlled by it, against adequate remuneration, to any other company, provided that, without such access, the latter is unable, for factual or legal reasons, to operate as a competitor of the company in a dominant position on the upstream or downstream market, unless the latter demonstrates that, for operational or other reasons, such access is reasonably impossible*” (author’s translation). On this matter: Moura e Silva, January/March 2010: 287-292.

15 Abuses can be qualified as exploitative or exclusionary. The former qualification refers to the exercise of market power over clients, consumers or business partners, while the latter focus on the ability to eliminate or discipline one’s competitors. See: Moura e Silva, 2018: 918; Oliveira Pais, 2011: 520; Temple Lang & O’Donoghue, July 2005:43-52; Whish & Bailey, 2021: 210-219.

16 The term ‘downstream market’ is used to refer to the market for which the refused input is needed in order to manufacture a product or provide a service. See: Guidance on Article 102.º, §76.

17 Whish & Bailey, 2021: 205.

The Commission acknowledges that, in principle, any firm, regardless of its position on a market, should have the right to choose its trading partners and to dispose freely of its property¹⁸. This means that if along the way a firm conquers legitimate competitive advantage, this firm has the right to keep it and use it, even if competitors lack the same conditions and may not have the tools or knowledge to realistically obtain it in the future¹⁹. Therefore, imposing an obligation to supply is an exceptional intervention on the freedom to conduct one's business and the right of private property, thus only possible if competition issues are at stake.

The reason for this is that the existence of such an obligation, even for a fair remuneration, may discourage undertakings to invest and innovate and, thereby, possibly harm consumers. Besides, competitors may be tempted to free ride on investments made by other firms, instead of investing into their business to become more efficient players²⁰.

Analysing the following cases will allow us to see patterns in the judgment of EU institutions on the adequate requirements for each kind of refusal to be amounted as an abuse of dominance under 102.^o TFEU, which can subsequently be applied in the context of Private Blockchains.

2.1. The first cases of Refusal to Deal

In 1974, the ECJ analysed the Commercial Solvents Case²¹, regarding a refusal from a dominant undertaking in the market for aminobutanol (raw material) to supply this product to an existent client, Zoja, that manufactured ethambutol (a derivative of the raw material). The market for the raw material necessary for the manufacture of a product (primary market) was separated from the market on which the derivate is sold (secondary market).²² Additionally, it was clarified that an abuse of dominant position in a primary market may have restricting effects on competition in a secondary market, and that these effects must be taken into consideration.²³

The Commission argued that, by interrupting supplience to Zoja, this refusal could lead to the elimination of this company on the secondary

18 Guidance on Article 102.^o, §75.

19 Temple Lang, 1994: 486.

20 Guidance on Article 102^o, §75.

21 Joined Cases C-6-7/73, *Commercial Solvents*, EU:C:1974:18.

22 *Idem*: §22.

23 *Ibidem*.

market, since none of the different alternatives offered Zoja real commercial possibilities to overcome this refusal.²⁴ Because Zoja was one of the main three producers of ethambutol in the Common Market, this would affect the maintenance of conditions of effective competition within the Common Market.

On this basis, the Court concluded that Commercial Solvent's unjustified decision to cease almost all the supply of the raw material to other companies and start manufacturing derivatives in competition with its former costumers, in such a way to eliminate competition would amount to eliminating a key player in the Common Market, thus being deemed as an abuse of dominance under 102.^{o25}

The takeaway from this case is that the action of a dominant firm to refuse to supply the raw material necessary for downstream players to manufacture derivatives of that material, in order to fulfil a self-desire of integrating vertically into the downstream market may be against competition law²⁶. Efficient dominant firms would, instead, produce the finish product at a cheaper price, while still providing the raw material for its rivals²⁷. Naturally, this comes across as competition law's purpose is to protect competitors and not consumers²⁸. However, Article 102.^o is not only aimed at practices which may cause direct damage to consumers, but also at those which are detrimental to them through their impact on an effective competition structure²⁹ – which does not mean that dominant firms are obliged to support its competitors³⁰, since that would demotivate them from providing new, improved or cheaper products or services to their clients, ultimately affecting consumer welfare and the general economy³¹.

24 *Idem*: §235.

25 *Idem*: §25.

26 Craig & Búrca, 2020: 1105.

27 *Idem*: 1105, 1065-1068.

28 Oliveira Pais, 2011: 80.

29 *Idem*: 81; Case 6-72; *Continental Can*, EU:C:1973:22, §26.

30 C-7/97, *Bronner/Mediaprint*, EU:C:1998:569, §9.

31 Opinion of AG Jacobs, delivered on 28 May 1998, C-7-97, *Bronner*, EU:C:1998:264, §58: "(...) in assessing this issue it is important not to lose sight of the fact that the primary purpose of Article 86 (current 102^o TFEU) is to prevent distortion of competition – and in particular to safeguard the interests of consumers – rather than to protect the position of particular competitors.". According to Wish and Bailey (2012: 175), this has been a frequent complaint against the Commission.

Regarding the possibility of justifying a refusal to supply, the ECJ has presented different approaches whether costumers were long-standing or occasional. On one hand, *United Brands*³² Case taught us that an undertaking in a dominant position may not refuse to supply long-standing costumers if the orders are “no way out the ordinary”³³, which can mean not “out of all proportion to those previously sold by the same wholesalers to meet the needs of the market in that Member State”³⁴. On the other hand, the ECJ decided in *BP Case*³⁵ that, in a period of shortage, in order to guarantee the supply of contractual costumers, a dominant undertaking’s decision to refuse to supply occasional costumers could be justified³⁶.

2.2. The late development of the Essential Facility Doctrine in Europe

The essential facilities doctrine is based on the idea that the owner of a facility that is not replicable by innovation and investment, must share it with a rival who depends on it to compete in a specific market³⁷. The origins of this doctrine can be traced back to 1914 when the Case *United States v Terminal Railroad Association of St Louis*³⁸ was assessed the Supreme Court of USA³⁹.

About eighty years later, in 1993, the European Institutions discussed for the first time the concept of “essential facility”, after a complaint to the Commission by *Sea Containers*⁴⁰, whose access to port of Holyhead was denied. This port was, at the time, the only British port serving the market for the provision of maritime transport services for cars and passengers on the “central corridor” route between the United Kingdom and Ireland. Thus, the refusal of access by *Stena Sealink Ports* would leave *Sea Containers* without

32 Case C-27/76, *United Brands*, EU:C:1978:22. *United Brands* was found guilty of a series of measures aimed at limiting competition between its distributors and retailers, including price discrimination and threats to de-list distributors who dealt with rival firms.

33 *Idem*: §182.

34 Joined cases C-468/06 to C-478/06, *GlaxoSmithKline AVEE*, ECLI:EU:C:2008:504, §76.

35 C-77/77, *BV*, EU:C:1978:141.

36 Case T-65/89, *BPB Industries*, EU:T:1993:31, upheld on appeal, C-310/93, *BPB Industries*, EU:C:1995:101, §32.

37 Craig & Búrca, 2020: 1107.

38 Case 383, *Terminal Railroad*, US.

39 Although the term wasn’t used in this case. See: Moura e Silva, 2008: 337 – 362; Wish & Bailey, 2012: 742.

40 Decision (EC), 94/19/EC – *Sea Containers/Stena Sealink*, §§66-67.

the option to compete since there was no substitute port nor equal substitute route, and building a new port was not a profitable or viable alternative⁴¹.

The Commission issued a decision regarding the behaviour of Stena Sealink Port, where it defined an essential facility as “*a facility or infrastructure, without access to which competitors cannot provide services to their customers*”⁴² and proclaimed that the owner of such facility “*which refuses other companies access to that facility without objective justification or grants access to competitors only on terms less favourable than those which it gives its own services, infringes Article 86*”, whether the refused company is a “new entrant” or an “established competitor”⁴³.

2.3. Refusal of Intellectual Property Rights

Then, in 1988, the ECJ acknowledged, in Renault Case, that a refusal to grant intellectual property rights (hereinafter, “IP rights”) to third parties, even in return for reasonable royalties, could not, in itself, constitute an abuse of dominance⁴⁴. In the same year, the Court considered, in Volvo Case, that an arbitrary refusal to supply spare parts to independent repairers could be amounted to an abuse prohibited under 102.⁴⁵ However, it was only 7 years later, in 1995, in Magill Case⁴⁶, that the European Court finally defined the specific requirements for a refusal to grant IP rights to constitute an abuse of dominance.

Magill Case concerned a refusal of three television companies (ITP, RTE and BBC) to grant the license of copyrights of daily TV guides to Magill, who intended to publish a weekly magazine containing information on forthcoming television programmes available in Ireland and Northern Ireland. At the time, there was no comprehensive television guide on the market. Each television company was used to publish guides covering exclusively its own programmes. To examine the existence of an abuse of dominance, two

41 Decision (EC), 94/19/EC – *Sea Containers/Stena Sealink*, §§62-64.

42 *Idem*, §66. More on this matter: Doherty, 2001:397-436.

43 Decision (EC), 94/19/EC – *Sea Containers/Stena Sealink*, §67.

44 C-53/87, *Renault*, EU:C:1988:472, §11,18.

45 C-238/87, *Volvo*, EU:C:1988:477, §9 and 11.

46 Joined cases C-241/91 P and C-242/91 P, *Magill*, EU:C:1995:98. It was an appeal to Case T-69/89, *Magill*, EU:T:1991:39. Magill was first prohibited to publish weekly television listings by national courts, and then lodged a complaint to the Commission which held the existence of an abuse of dominance. The case eventually was reviewed by the General Court and the ECJ which both dismissed the appeals.

separate markets were defined: the market of comprehensive TV guides and the market of general TV programs information. The Commission claimed that there was a factual and legal monopoly held by the television companies regarding their individual programme listings, resulting in a lack of possible competition from third parties, who could meet a “substantial potential demand”⁴⁷, given the fact that there was no comprehensive weekly listing available to the consumer “*in a reasonably practical way and without having to pay a considerable amount of money*”⁴⁸.

Although this Case was protected by copyright⁴⁹, the ECJ gave us three requirements for a refusal of IP rights to be amounted to an abuse under 102.º: (1) the existence of an essential facility (“only source”, in this case, an “indispensable raw material”)⁵⁰; (2) the refusal would have to prevent the emergence on the market of a new product, with potential consumer demand⁵¹; (3) there was no objective justification⁵²; and (4) the refusal would exclude all competition in the requested market⁵³. However, the ECJ didn’t clarify whether the requirements were cumulative or alternative, until later cases were assessed.

2.4. Ladbroke, Bronner and IMS Cases

In 1997, in Ladbroke Case⁵⁴, the CFI held that “*the refusal to supply the applicant could not fall within the prohibition laid down by Article 86 unless it concerned a product or service which was either essential for the exercise of the activity in question, in that there was no real or potential substitute, or was a new product whose introduction might be prevented, despite specific, constant and regular potential demand on the part of consumers*” (author’s emphasis). The expression

47 Decision (EC), 89/205/CEE – *Magill TV Guide/ITP, BBC y RTE*, §23.

48 *Ibidem*.

49 “*The conduct at issue could not qualify for such protection within the framework of the necessary reconciliation between intellectual property rights and the fundamental principles of the Treaty concerning the free movement of goods and freedom of competition*”. Case T-69/89, *Magill*, EU:T:1991:39, §75.

50 Joined cases C-241/91 P and C-242/91 P, *Magill*, EU:C:1995:98, §53.

51 *Idem*, §54.

52 *Idem*, §55.

53 *Idem*, §56.

54 Case T-504/93, *Tiercé Ladbroke SA*, EU:T:1997:84, §§131-132.

“or” suggested an alternative nature. From then on, many jurists viewed this as a clarification from the Court that the requirements were alternative⁵⁵.

Then, in 1998, the ECJ assessed Bronner Case⁵⁶, which was an Austrian newspaper publisher whose access to Mediaprint’s nationwide home-delivery scheme was denied. This system could deliver newspaper directly to subscribers in early morning.

Foremost, the Court invited the national court to determine whether the home-delivery schemes constituted a separate market⁵⁷, on which, in light of the circumstances of the case, Mediaprint held a *de facto* monopoly position and, thus, a dominant position⁵⁸. To establish if this conduct could represent an abuse of dominance, the ECJ conceptualized three conditions, according to previous court decisions⁵⁹: (i) the refusal should be likely to eliminate all competition; (ii) the service should be indispensable⁶⁰ to carrying on the business on the requested market, meaning there was no actual or potential substitute; and (iii) such refusal cannot be objectively justified⁶¹.

On one hand, Bronner argued that “*postal delivery, which generally does not take place until the late morning, does not represent an equivalent alternative to home-delivery, and that, in view of its small number of subscribers, it would be entirely unprofitable for it to organise its own home-delivery service. Oscar Bronner further argues that Mediaprint has discriminated against it by including another daily newspaper in its home-delivery scheme, even though it is not published by*

55 Oliveira Pais, 2011: 559.

56 C-7/97, *Bronner/Mediaprint*, EU:C:1998:569. Some argue that the Bronner Case entails an ex-ante analysis of monopolization rather than an analysis of abuse of dominant position ex-post, explained by the fact that now that markets have been integrated and the main barriers to trade among the Member States have disappeared, EC law is more concerned with monopolization rather than the emergence of power. See: Evrard, 2004:521.

57 C-7/97, *Bronner/Mediaprint*, EU:C:1998:569, §34.

58 *Idem*, §35.

59 Namely, Joined Cases C-6-7/73, *Commercial Solvents*, EU:C:1974:18, §25, C-311/84, *Télémarketing (CBEM)*, EU:C:1985:394, §26 and Joined cases C-241/91 P and C-242/91 P, *Magill*, EU:C:1995:98, §§40, 49, 53-56, as mentioned in C-7/97, *Bronner/Mediaprint*, EU:C:1998:569, §§38-41.

60 Recent cases have developed the topic of indispensability. For example, in *Slovak Telekom*, the GC claimed that the Commission was no longer required to demonstrate the condition of indispensability, because the legislation relating to the telecommunications sector acknowledged the need for access to the appellant’s local loop in order to allow the emergence and development of effective competition in the Slovak market for high-speed internet services. See: C-165/19 P, *Slovak Telekom*, EU:C:2021:239, §§21, 39; Decision (EC), Case AT.39523 – *Slovak Telekom*, §§121, 123-127.

61 C-7/97, *Bronner/Mediaprint*, EU:C:1998:569, §41.

Mediaprint.⁶² On the other hand, Mediaprint argued that “*making the system available to all Austrian newspaper publishers would exceed the natural capacity of its system*” and pointed to the fact that, just because Mediaprint holds a dominant position does not oblige it to subsidise competition by assisting its competitors⁶³.

In this Case, the ECJ considered that the indispensability test was not met because there were other methods of distributing daily newspapers – such as by post or through sale in shops and at kiosks, though they may be less advantageous⁶⁴ – and there were no technical, legal or even economic obstacles to make it impossible, or even unreasonably difficult, to establish, along or in cooperation with other publishers, another nationwide home-delivery scheme⁶⁵. The Court, then, clarified that, in order to demonstrate that the creation of such a system is not a realistic potential alternative and that access to the existing system is therefore indispensable, “(...) *it is not enough to argue that it is not economically viable by reason of the small circulation of the daily newspaper or newspapers to be distributed*”, but it would be necessary to prove that it is not economically viable to create a distribution system of comparable size⁶⁶.

It is important to note that Bronner Case heavily contributed to the construction of the notion of an “essential facility” in the EU as an objective concept, which does not depend on the needs⁶⁷ or vulnerability⁶⁸ of the competitor who requests access, but on whether the “*duplication of the facility is impossible or extremely difficult owing to physical, geographical or legal constraints or is highly undesirable for reasons of public policy*”⁶⁹.

In the case of IP rights, since their purpose is to give its owner an exclusive right to exercise an economic activity, justified by the effort of the inventor or as a counterpart of the public disclosure of the invention⁷⁰, Bronner require-

62 *Idem*, §8.

63 *Idem*, §9.

64 *Idem*, §43.

65 *Idem*, §44.

66 *Idem*, §46. Temple Lang, 2000:380.

67 Temple Lang, 2000: 380-381.

68 Opinion of AG Jacobs, delivered on 28 May 1998, C-7-97, *Bronner*, EU:C:1998:264, §51.

69 *Idem*, §65.

70 Sousa e Silva, 2019: 54.

ments appear as non-compatible with an obligation to grant such exclusive right⁷¹. This matter was further discussed in *IMS Case*.

In 2004, the ECJ assessed the *Case IMS*⁷², related to the interpretation of Article 102.^o in regards to a refusal to grant a licence to use a brick structure for the presentation of regional sales data by an undertaking in a dominant position which has an intellectual property right therein to another undertaking which also wishes to provide such data in the same Member State, but which, because potential users are unfavourable to it, cannot develop an alternative brick structure for the presentation of the data that it proposes to offer.

The ECJ acknowledged, in reference to AG Tizzano's Opinion, that the need to protect free competition can prevail over the need to protect IP rights only where refusal to grant a licence prevents the development of the secondary market to the detriment of consumers⁷³. In its Opinion, Tizzano seems to differentiate two realities (intangible assets and tangible assets), which suggest the existence of different treatments for refusals of each kind to amount to an abuse under 102.^o⁷⁴. Following the position of the AG, the ECJ invokes the requirements of *Magill Case*⁷⁵, suggesting a cumulative nature⁷⁶.

Although the ECJ finally provided confirmation on the adequate requirements in cases of refusals of IP rights, critics claim this decision overly guarded competitors' interests over the own structure of competition and that it didn't clarify the concepts of a "new product", "potential demand", and "objective justifications"^{77,78}. Besides, the Court held that it was sufficient that a potential market or even a hypothetical market could be identified,

71 Oliveira Pais, 2011:562; Pinto Monteiro, 2010: 123.

72 C-418/01, *IMS Health*, EU:C:2004:257.

73 *Idem*, §48; Opinion of AG Tizzano, delivered on 2 October 2003, C-418/01, *IMS Health*, EU:C:2004:673, §62.

74 Opinion of AG Tizzano, delivered on 2 October 2003, C-418/01, *IMS Health*, EU:C:2004:673, §66. See also: Oliveira Pais, 2011: 567.

75 Although rephrased in a different way.

76 C-418/01, *IMS Health*, EU:C:2004:257, §49: "(...) *the refusal by an undertaking in a dominant position to allow access to a product protected by an intellectual property right, where that product is indispensable for operating on a secondary market, may be regarded as abusive only where the undertaking which requested the licence does not intend to limit itself essentially to duplicating the goods or services already offered on the secondary market by the owner of the intellectual property right, but intends to produce new goods or services not offered by the owner of the right and for which there is a potential consumer demand.*"; See also, Opinion of AG Tizzano, delivered on 2 October 2003, C-418/01, *IMS Health*, EU:C:2004:673, §66.

77 The ECJ developed the concept of objective justifications in C-53/03, *Syfait*, EU:C:2005:333. See also: Opinion of AG Jacobs, delivered on 28 October 2004, C-53/03, *Syfait*, EU:C:2004:673, §§66-115.

78 Oliveira Pais, 2011: 568-572.

which was contradictory to the practice related to the essential facility doctrine in the EU.

2.5. Microsoft Case

Finally, one of the most relevant recent cases regarding refusals to grant IP rights is Microsoft Case⁷⁹, assessed by the CFI in 2007, after the decision of the EC in 2004, concerning, among other actions, a refusal to supply its competitors with interoperability information⁸⁰, more precisely, an interruption of supply⁸¹.

The Commission found that there was a lack of interoperability that the competing work group server operating system products could achieve with the Windows domain architecture, making the consumers stuck with Windows's products, without being able to benefit from the products of Microsoft's competitors. This was viewed as limiting the competitors' ability to develop compatible products⁸², ultimately discouraging them from creating new products⁸³.

To analyse the existence of an abuse under 102.^o and justify the application of the essential facility doctrine, the Commission did not expressly mention that Microsoft's refusal prevented the appearance of a new product⁸⁴. Instead, the Commission based its decision on a "balance test"⁸⁵, which resulted in the conclusion that "*the possible negative impact of an order to supply on Microsoft's incentives is outweighed by its positive impact on the level of innovation of the whole industry*"⁸⁶, and ultimately contrary to the "general public good"⁸⁷.

79 Case T-201/04, *Microsoft*, EU:T:2007:289. See also: Decision (EC), COMP/C- 3/37.792, *Microsoft*.

80 Case T-201/04, *Microsoft*, EU:T:2007:289, §36 and Decision (EC), COMP/C- 3/37.792, *Microsoft*, §§546-791. According to Wegner (1996: 285), "*Interoperability is the ability of two or more software components to cooperate despite differences in language, interface and execution platform*". Many authors expose the lack of interoperability inside the Blockchain technology and propose technical solutions: Pillai *et al*, 2020:1-17; Schulte *et al*, 2019: 1-8; Belchior *et al*, 2021:168:1-168:41.

81 Decision (EC), COMP/C- 3/37.792, *Microsoft*, §§578-584. Which was not the case in Magill.

82 *Idem*, §572.

83 *Idem*, §694.

84 Although it mentioned Magill's requirements. See: *Idem*, §551.

85 Without even providing criteria to define this apparent "new test". Pinto Monteiro, 2010:149-151.

86 Decision (EC), COMP/C- 3/37.792, *Microsoft*, §783.

87 *Idem*, §711.

In the appeal, the CFI clarified that the Commission's decision did not entail a new test and reaffirmed the Magill's requirements on refusals of IP rights⁸⁸. Moreover, the Court confirmed that there is the need to distinguish two markets⁸⁹ to analyse a duty of granting a licence and added that the requested market could be potential or even hypothetical if the circumstances identified in IMS Health Case were present in the case⁹⁰. These are the positions of the ECJ that prevail until today.

2.6. Preliminary conclusion

The essential facility doctrine was originally designed for tangible assets, such as infrastructures related to transport. However, since Magill's Case in 1995, the Commission and the EU Courts have agreed upon the applicability of this doctrine on intellectual property rights⁹¹. However, these require a different treatment given the characteristics of exclusive rights⁹². Only a case-by-case analysis focused on the balance between competition and the protection of innovation, may be adequate for the assessment of these type of refusals⁹³. In conclusion, the EU Institutions have been more demanding when applying the essential facility doctrine to cases of refusals to grant IP rights, compared to cases in which tangible assets are in stake.

3. BLOCKCHAIN

3.1. The Technology behind Blockchain

In general, Blockchain is a distributed database technology, that uses network validation as a substitute to traditional intermediaries (e.g., banks), in which trust is ensured by conditions of security, anonymity and immutability. All information is encrypted into "nodes", which can record user's belongings (e.g., quantity and value of items) and financial transactions with each

88 Case T-201/04, *Microsoft*, EU:T:2007:289, §§319, 331-335, 691, 1336. Pinto Monteiro, 2010:152-154.

89 "Namely, a market constituted by that product or service and on which the undertaking refusing to supply holds a dominant position and a neighbouring market on which the product or service is used in the manufacture of another product or for the supply of another service."; Case T-201/04, *Microsoft*, EU:T:2007:289, §335.

90 *Idem*, §§335-336.

91 Oliveira Pais, 2011: 593.

92 *Idem*: 593.

93 *Idem*: 597.

other⁹⁴. Users can track data records, digital identities, financial assets and physical items⁹⁵.

The advantages of this technology include the reduction of the need to trust between stakeholders, a secure value transfer system, a streamline business process across multiple entities and an increase record transparency and ease of auditability⁹⁶.

Through this technology users can transfer money to each other, store information, execute contracts and obtain the authentication of property (e.g., NFTs⁹⁷). Because of this, Blockchain is useful in many sectors, namely, bank and insurance, energy, transportation, food-chains and health care services⁹⁸.

3.2. The Origin of Blockchain

Some believe that the ideology of Blockchain can be traced back to the 1960's "cypberpunk" movement, started by Stewart Brand and his wife, who created the "Whole Earth Catalog", which consisted in a collection of data that would allow anyone on Earth to "*find out the complete information on anything*", starting the DIY culture based on a personal liberation purpose⁹⁹.

However, Blockchain's technological origins can be found in David Chaum's 1982's dissertation, named "*Computer Systems Established, Maintained, and Trusted by Mutually Suspicious Groups*", where the author addresses the problem of establishing and maintaining computer systems that can be trusted by those who don't necessarily trust one another, and provides solutions through cryptographic algorithms and privacy-preserving techniques¹⁰⁰. He is also known for being the inventor of digital cash through "Ecash", in 1990, an electronic cash application that aimed to preserve users' anonymity.

Following Chaum's legacy, Satoshi Nakamoto¹⁰¹ introduced the basis of Blockchain technology as we know now, in his famous article called "*Bitcoin:*

94 Maggiolino, & Zoboli, 2021:5.

95 Hileman & Rauchs, 2017:39.

96 *Idem*:15.

97 Non-Fungible Tokens.

98 Maggiolino & Zoboli, 2021:5; Hileman & Rauchs, 2017:38; Sharma *et al*, 2021:673-682; OECD, 2022:9.

99 Schrepel, 2021:2-5.

100 Chaum, 1982.

101 Whose identity is, until today, unknown.

A Peer-to-Peer Electronic Cash System”, published in 2008, where the author proposed a solution to prevent double-spending in electronic cash through a peer-to-peer network, using digital signatures and a proof-of-work model, making it unnecessary for financial institutions to interfere in monetary transactions¹⁰². A year later, Bitcoin was publicly released in an open source, being one of the most popular digital coins ever to exist, with over 500 million transactions¹⁰³.

3.3. Private Blockchains

Although the original concept of Blockchain was based on a decentralized system with no single authority, the evolution of this technology resulted in the creation of private systems where a more centralized governance paves the way.

A Private Blockchain is a network system usually ruled by a user or group of users who have the power to select and verify participants to enter into the group, and decide the protocols for that blockchain, including the consensus mechanisms¹⁰⁴ in which decisions are taken. As far as benefits, with a reduced number of participants, transactions can be faster and have lower fees¹⁰⁵ than they would in public blockchains¹⁰⁶.

Private blockchains can be further segmented, depending on the permission models to read (who can access to the ledger and the transactions records), write (who generate transactions and send them to the network) and commit (who can update the state of the ledger). There are two types to be differentiated: the Consortium and the Private permissioned¹⁰⁷.

In a Consortium, there is a restricted access to the ledger and the transactions records to a set of participants and only authorised participants can generate transactions and send them to the network. Regarding the update the state of the ledger, all or subset of authorised participants have the right

102 Nakamoto, 2008:1-6.

103 Data from April, 2020, available on: [available on: https://perma.cc/ZB5X-CPHL](https://perma.cc/ZB5X-CPHL).

104 For further details on consensus mechanisms, see: Maggolino & Zoboli, 2021:6-7; Freire, 2022: 31-45; Zhang *et al*, 2019: 185-193.

105 Takyar.

106 Generally speaking, *Public Blockchains* are open and permissionless, meaning that anyone can join the network and start transacting without needing approval from other members, and see read the (encrypted) data. Bitcoin operates in such system. More on this matter: Hileman & Rauchs, 2017:20; Schrepel, 2021:145-146.

107 Hileman & Rauchs, 2017:20.

to in a consortium system. As an example of a consortium, think of multiple banks operating a shared ledger¹⁰⁸.

In a Private permissioned, the access to the ledger and transactions records is fully private or restricted to a limited set of authorised nodes and only network operators can generate transactions and include them in the chain. Besides, only network operators are allowed to update the ledger. As an example of a private permissioned, think of an internal bank ledger shared between a parent company and its subsidiaries¹⁰⁹.

Hereinafter, we'll refer to the term "private blockchain" as including both types, since our focus is on the ability to refuse access to other members of the blockchain reality and, in both cases, only authorised parties can access the system.

Overall, in private blockchains, there is a certain level of trust due to the real identities of the users of such systems being usually known to the group, which is not the case in public blockchains. Therefore, in private systems, there is no need for a good behaviour incentivisation through a token reward¹¹⁰ and security issues are unlikely to happen¹¹¹. Nevertheless, participants are held liable usually through off-chain legal contracts¹¹² or smart contracts, which can self-execute if certain conditions are met (e.g., if one user misbehaves, a smart contract can self-execute to expel that user from the private blockchain)¹¹³.

108 *Ibidem*. There are many companies that develop their businesses around the concept of helping other companies manage private permissioned blockchains. A real example is "Quorum", a fully managed ledger service that provides "*unified control for both infrastructure management as well as blockchain network governance*", so that enterprises "*can choose to develop in a private, permissioned context*". See: Quorum, available on: <https://consensys.net/quorum/qbs/>.

109 Hileman & Rauchs, 2017:20.

110 *Idem*:21.

111 Mohan, 2019:405.

112 Hileman & Rauchs, 2017:21.

113 According to Szabo *cit by* Schrepel, 2021:41, available on <https://perma.cc/5NF3-R6N3>: "*A smart contract is a set of promises, specified in digital form, including protocols within which the parties perform on these promises.*"; For an overview of how smart contracts work, see: Freire, 2022: 47-66, 115-119; Mohanta *et al*, 2018: 1-4; Cong & He, 2019.

4. REFUSAL TO DEAL IN PRIVATE BLOCKCHAINS

4.1. Definition of a Relevant Market and a Dominant Position in the Blockchain Technology

Prior to assessing whether a behaviour of a dominant undertaking amounts to an abuse, it is essential to define the relevant market(s), to identify the competitive environment in which firms operate, so that authorities can assess competition issues¹¹⁴. The method chosen by the EU Institutions is based on the identification of a relevant product market and a geographic area.

A relevant product market comprises all products that consumers regard as being reasonably substitutable by dint of their characteristics, price or intended use¹¹⁵, while the relevant geographic market comprises the area in which the conditions of competition are similar or homogeneous enough to be distinguished from neighbouring areas.¹¹⁶ The basic principles for market definition lay on demand substitutability¹¹⁷, supply substitutability and potential competition¹¹⁸.

In the case of a refusal to give access to a product or service indispensable to the exercise of a particular activity, let's recall Microsoft Case, in which it was held that: “(...) *it is necessary to distinguish two markets, namely, a market constituted by that product or service and on which the undertaking refusing to supply holds a dominant position and a neighbouring market on which the product or service is used in the manufacture of another product or for the supply of another service.*”¹¹⁹

To define relevant markets in the blockchain technology, one must identify the type of the blockchain (monocentric or platform), the layer impacted by the anticompetitive practice¹²⁰ and the product/service provided by the blockchain.

114 Commission Notice on the definition of relevant market (C/2024/1645), §6.

115 *Idem*, §7.

116 *Idem*, §8. Case C-27/76, *United Brands*, EU:C:1978:22, §11.

117 Through the SSNIP test it is possible to analyse whether a hypothetical monopolist would profit with a small but permanent increase of prices by 5-10% of a specific product. The reactions of consumers to that increase would determine whether a product is in the same market of another, based on the elasticity of demand. This test was originally developed by the USA for merger cases. Oliveira Pais, 2011: 375.

118 Commission Notice on the definition of relevant market (C/2024/1645), §23.

119 Case T-201/04, *Microsoft*, EU:T:2007:289, §335.

120 As suggested by Schrepel, 2021:40-41 and 185.

In monocentric blockchains, one has two layers to distinguish: the layer 1 (lower layer), the constitutional layer composed by hardware and base applications, and the layer 2 (higher layer), where the application software runs. As an example, Bitcoin operates in a monocentric blockchain.¹²¹ Monocentric blockchains can be used for only one application¹²². In this case, the product market is defined by that application's product/service. We can apply this reasoning in the case of Bitcoin, a monocentric blockchain that provides crypto-payment services, in which, in a competitive dispute with another company, the relevant market could be the payment services through crypto money or, potentially, the payment services in general if there was substitutability found between payments with government owned money and payments with decentralized owned money.

In platform blockchains, an unlimited number of applications can be added on top of the constitutional layer¹²³. Melanie Swan believes there are three types of layers: blockchain 1.0 (cryptocurrency), blockchain 2.0 (smart contracts) and blockchain 3.0 (all other blockchain uses, e.g., social media)¹²⁴. Inside each layer, multiple applications can be created, providing a wide variety of products/services. Regardless of layer classification, Schrepel and Hutchinson commonly believe that there is no substitutability between layers¹²⁵. Moreover, since decentralization is generally embedded in lower layers, the relevant product market is decided according to the "core activities" of the companies involved in the competition dispute¹²⁶. In relation to the geographical market definition, some blockchains may be focused on a local market, for example, a local food distribution, while others may compete globally, for example, regarding financial transactions¹²⁷.

In this approach, we don't divide markets depending on a blockchain's public or private nature, because if "*an open-source platform can compete with a proprietary platform*", then, *mutatis mutandis*, a private blockchain can compete in

121 *Idem*: 40.

122 *Idem*: 185.

123 *Ibidem*.

124 Swan, 2015: 1–8 *cit by* Schrepel, 2021: 40.

125 Schrepel, 2019: 304; Hutchinson & Egorova, 2020: 90-95.

126 Schrepel, 2021: 185.

127 Schrepel, 2019: 305.

the same market as a public blockchain¹²⁸. However, we acknowledge that in a refusal to deal with a private blockchain, it may be easier to define markets, since these systems are often created to develop a specific product/service, although there are ones with general purposes (i.e., Hyperledger, Corda)¹²⁹.

An undertaking enjoys a dominant position on a market when its economic strength enables it to “*prevent effective competition being maintained on the relevant market by giving it the power to behave to an appreciable extent independently*”¹³⁰ of its competitors, customers and ultimately of its consumers¹³¹. Companies in this position hold an especial responsibility of not disturbing the maintenance or development of competition¹³².

In order to examine the market power between blockchains, one may consider various factors, such as the number of users, the number of transactions recorded, the number of blocks or the amount of revenues. We suggest a case-by-case analysis since every blockchain is different, and some blockchains involve revenue, while others don't. Some authors argue that the method chosen in Google Shopping Case¹³³, where the Commission decided to establish market shares by volume, may be applied in the blockchain context, since, similarly, services may be provided free of charge to the users¹³⁴. In fact, the draft of the revised Market Definition Notice focuses, among other things, on the “*greater emphasis on non-price elements such as innovation and quality of products and services*”¹³⁵. Others argue that, as in Google Shopping Case¹³⁶, where online sales were integrated into the general sales market (including physical sales), the blockchain market power could be analysed

128 *Idem*: 304.

129 Schrepel, 2021: 185.

130 Azevedo and Walker (2002: 366) argue that the definition of dominance could be more economically coherent by replacing “behave to an appreciable extent independently” with “not restrained by the independent actions”. See: Azevedo & Walker, 2002: 366, *cit by* Etro & Kokkoris, 2010: 21.

131 Case C-27/76, *United Brands*, EU:C:1978:22, §65; Case 85/76, *C-85/76, Hoffman-La Roche*, EU:C: 1979:36, §38; Junqueiro, 2012: 59-85; Van Bael & Bellis, 1994: 78-81; Bermann *et al.*, 1993: 803 – 805.

132 C-322/81, *Michelin*, EU:C:1983:313, p. 3461. See also: C-280/08, *Deutsche Telekom*, EU:C:2010:603, §176; C-52/09, *Konkurrensverket*, EU:C:2011:83, §24; Moura e Silva, 2008: 547.

133 Case T-612/17, *Google*, EU:T:2021:763.

134 Hutchinson & Egorova, 2020: 90-95.

135 See: Press release, 8/11/2022, available on https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6528.

136 Case T-612/17, *Google*, EU:T:2021:763.

*“in comparison with other digital products or services, and potentially, non-digital alternatives”*¹³⁷.

In the light of the above, a private blockchain may be considered to have a dominant position according to the number of users involved in its system, compared to the number of users in other blockchains inside the same market. Furthermore, challenges may surface regarding market power in public blockchains, since it is *“tied to the absence of central power, and the need to ask the majority of blockchain users to adopt changes, which greatly mitigate the idea of power.”*¹³⁸. Overall, since *“decentralization is generally embedded in lower layers”*¹³⁹, the higher the layer, the easier it may be to define a dominant position.

In essence, the methodology chosen for assessing relevant markets in the blockchain technology is based on the layer where the application is placed and the products/services involved, while the market dominance may be defined by various criteria yet to be tested.

4.2. Refusal of access to a Private Blockchain as an abuse of dominance under 102.º TFEU

Assuming the existence of a dominant position, we’ll suggest examples of possible refusals regarding private blockchains, with presumed market definitions, to outline the adequate legal assessment of such behaviours according to EU Case Law on abuse of dominance under 102.º.

The first example will lay on the most known business sector for this technology: the financial industry. In this regard, assuming a dominant position on the relevant market, imagine that:

Financial institution X decides to create a private blockchain that can reduce the transactional costs by creating a more efficient trade settlement process, for its own use, benefiting its direct clients in their businesses (in the case of companies) or normal daily purchases/transactions (in the case of individuals). Other financial institutions request access to this private system, since there is no other blockchain that can provide this service, being then refused by the owner company. Hereby, these financial institutions have no alternative than to keep providing transactions with higher costs to its clients. Is this refusal anti-competitive¹⁴⁰?

137 Schrepel, 2019: 304.

138 *Idem*: 306.

139 Schrepel, 2021: 58.

140 This example was inspired by: Kim & Justil, 2018: 13-15.

This case concerns a refusal to supply a service that has never been available on the market, namely a type of trade settlement process created by X for its own use and that was never provided to any of its competitors.

The European Courts have been cautious in determining whether a product/service that was never available on a market is indispensable to the competitiveness of markets, to the point of obeying an undertaking to contract with another, given that a company's decision to keep their created, acquired or developed products/services for own exclusive use is part of the freedom to conduct a business, which is protected as a fundamental right under the Charter of Fundamental Rights of the EU¹⁴¹.

The EU Institutions have developed three conditions for this type of refusal to amount an abuse of dominance under 102.^o: (i) the refusal should be likely to eliminate all competition; (ii) the service should be indispensable to carrying on the business on the requested market (no actual or potential substitute); and (iii) such refusal cannot be objectively justified¹⁴².

In this case, two markets can potentially be identified, assuming there is no demand substitutability between them, and that financial institution X has a monopoly over the mentioned process: the market for the supply of access to a more efficient trade settlement process, and the market of regular trade settlement process, both markets related to the financial industry inside the blockchain reality.

Following the ECJ's judgment in Bronner Case, if there are other methods to trade settlement, though less efficient, this indicates that this system is not indispensable for the refused companies¹⁴³. Additionally, to demonstrate that the creation of such a system is not a realistic potential alternative, the refused companies would have to prove the existence of technical, legal or economic obstacles¹⁴⁴.

According to the ECJ, an essential facility is a "*a facility or infrastructure, without access to which competitors cannot provide services to their customers*"¹⁴⁵. In this case, there are other alternatives on the market that would potentially substitute this private blockchain, which means the condition of "essential

141 Marrapodi, 2018: 14-18.

142 C-7/97, *Bronner/Mediaprint*, EU:C:1998:569, §§38-41.

143 *Idem*, §48.

144 *Idem*, §49.

145 Decision (EC), 94/19/EC – *Sea Containers/Stena Sealink*, §66. More on this matter: Doherty, 2001: 397-436.

facility” is not verified. Therefore, this refusal to access a private blockchain would probably be considered as a legitimate behaviour of the dominant undertaking.

Now let’s imagine the following situation:

Company A develops a software compatible with blockchain technology that uses Artificial Intelligence to ensure security and compliance through regular vulnerability scans to help prevent informatic attacks. Company A gets a patent on this software and then decides to open a private blockchain for authorized companies to use its software to protect their businesses. Company B asks company A to grant its IP rights over the software so that company B can develop a unique game on blockchain where players (typically, software engineers) can battle AI-based opponents in solving informatic attacks to earn cryptocurrency. Company B argues that without Company A’s software patent’s rights, Company B can’t succeed in the building of its game. Is this refusal anti-competitive¹⁴⁶.

This case concerns a refusal to grant patent rights to another company. Patents give an exclusive right to exercise an economic activity, justified by the effort of the inventor or as a counterpart of the public disclosure of the invention¹⁴⁷. Under the European Patent Convention¹⁴⁸, a computer software isn’t, in itself, regarded as an invention, unless it has a “*technical effect which goes beyond the normal physical interactions between the program and the computer*”¹⁴⁹.

Intellectual property may represent a way of regulating economy, in which national laws define its limits¹⁵⁰. The ECJ has claimed that a refusal to grant

146 This example was inspired by IBM, a software company that leads as having the most blockchain-related patent applications in 2021, according to: <https://www.kramerlevin.com/en/perspectives-search/top-holders-of-blockchain-patents.html>. Among its products, IBM offers AI for business and security scans. See: <https://www.ibm.com/products/blockchain-platform-hyperledger-fabric>; and <https://www.ibm.com/software>. This example was also inspired by GameFi, a blockchain-based gaming company that financially rewards gamers for their time and effort. See: <https://gamefi.org/>. Some authors have equated the possibility of refusals of IP rights in the blockchain context. E.g.: Schrepel, 2021: 193-197.

147 Sousa e Silva, 2019: 54.

148 Article 52.º, n.º 2, (c) and n.º 3, EPC of 5 October 1973.

149 Guidelines for the Examination of the EPO; Sousa e Silva, 2019: 50-52.

150 Sousa e Silva, 2014: 969. It may be noted that national rules on intellectual property themselves impose limits in certain circumstances through rules on compulsory licensing. See: Opinion of AG Jacobs, delivered on 28 May 1998, C-7-97, *Bronner*, EU:C:1998:264, §63.

IP rights does not, in principle, constitute an abuse of dominance¹⁵¹. It is only when an IP right overpasses the necessary scope of protection or creates unnecessary barriers of enter, that competition on a market may be wrongfully restricted¹⁵².

According to EU Case law, a refusal to grant IP right may constitute an infringement of 102.^o if: (i) the refusal is likely to eliminate all competition; (ii) the service is indispensable to carrying on the business on the requested market; (iii) the refusal prevents the emergence of a new product/service, (iv) such refusal cannot be objectively justified¹⁵³.

In this case, we can potentially identify two markets: the market for computer security software on blockchain and the market for AI-based games focused on solving informatic attacks designed for blockchain (the requested market).

Since company B claims that its invention is unique, we assume this game would be a new product on the industry of blockchain games and that, because of this refusal, all competition for this new market would be eliminated. One must question if there is actual demand for this kind of game on the blockchain reality, since on Magill's Case, that was an important factor in considering the potential effects of the refusal on competition¹⁵⁴.

Regarding the indispensability test, company B would have to explain exactly how this refusal is affecting the production of this new game and if there were no alternative companies that would provide a service that would help B develop its game without the A's IP rights.

In closing, the behaviour of company A may be considered as an abuse of dominant position if company B could prove that this game is a new product on blockchain reality – which constitutes a new market with potential demand – and that A's IP rights are indispensable for the creation of this game.

Among the types of refusal analysed, we believe that refusals to deal regarding IP rights will be popular in the blockchain reality, since blockchain-based

151 See, e.g., C-53/87, *Renault*, EU:C:1988:472, §511, 18, and C-238/87, *Volvo*, EU:C:1988:477, §59, 11.

152 Moura e Silva, 2008: 327.

153 Namely, Joined Cases C-6-7/73, *Commercial Solvents*, EU:C:1974:18, §25, C-311/84, *Télémarketing (CBEM)*, EU:C:1985:394, §26 and Joined cases C-241/91 P and C-242/91 P, *Magill*, EU:C:1995:98, §§40, 49, 53-56, as mentioned in C-7/97, *Bronner/Mediaprint*, EU:C:1998:569, §§38-41.

154 Decision (EC), 89/205/CEE – *Magill TV Guide/ITP, BBC y RTE*, §23.

applications to Intellectual Property Authorities have increased in the last few years, especially in countries like the U.S.A. and China¹⁵⁵.

Overall, the assessment of cases like these will depend significantly on the market definition and the ability of companies to prove the EU's requirements.

4.3. Possible objective justifications

Up until now we have focused on how a refusal of access to a private blockchain can be amounted to an abuse of dominance under 102.^o. However, as in any case of abuse, if it is justified, no competition penalties will be imposed. This is a responsibility incumbent upon the dominant undertaking, which must support its plea with arguments and evidence¹⁵⁶. It then falls to the Commission to show that the arguments and evidence cannot prevail, and, because of that, the justification cannot be accepted¹⁵⁷.

With regards to possible justifications, the Commission has acknowledged that a dominant undertaking may take reasonable steps to protect its commercial interests under threat, as long as the purpose was not to strengthen the dominant position and thereby abuse it¹⁵⁸. For example, when a customer transfers its central activity to the promotion of a competing brand, a dominant producer is entitled to review its commercial relations with that customer and on giving adequate notice to terminate any special relationship¹⁵⁹. Furthermore, the ECJ has admitted that a refusal to deal could be justified by technical or commercial requirements relating to the nature of the service provided¹⁶⁰. It is noteworthy that the Commission has held that administrative boundaries may be technical constraints to the development of new structures¹⁶¹.

Over the decades, many companies have unsuccessfully tried to justify refusals to deal. The EU institutions have rejected arguments related to loss

155 Jiang *et al*, 2021: 562-574.

156 Guidance on Article 102.^o, §31. Case T-201/04, *Microsoft*, EU:T:2007:289, §688. Regarding the burden of proof in objective justifications: Vijver, 2014: 183-188.

157 Case T-201/04, *Microsoft*, EU:T:2007:289, §1144.

158 C-27/76, *United Brands*, EU:C:1978:22, §190. Decision (EC), COMP/38.096, AT.38096, *Clearstream*, §132.

159 Decision (EC), 87/500/EEC, IV/32.279, *BBI/Boosey & Hawkes*, §19.

160 C-311/84, *Télémarketing (CBEM)*, EU:C:1985:394, §26.

161 Decision (EC), COMP D3/38.044, *IMS Health*, §131.

of revenue/market share¹⁶², capacity limits, exclusivity of property right, freedom of business strategy, historical rights that resulted into the reservation¹⁶³, among others. In the specific case of a refusal to grant IP rights, the Court did not accept arguments with reference to the exclusivity of its IP rights and the great value behind the license¹⁶⁴.

In the case of private blockchains, we suggest a more technological approach related to the characteristics and purpose of this kind of system in creating a private environment where sensitive data can be stored¹⁶⁵. In this context, can an objective justification of refusal lay on data privacy¹⁶⁶?

The current General Data Protection Regulation¹⁶⁷ is a European legislation that concerns how businesses, organisations, and governments, should utilise “personal data”¹⁶⁸. One of the principles of this regulation relating to processing of personal data is the principle of “integrity and confidentiality”, in which companies must process data in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures¹⁶⁹.

The Commission has previously acknowledged that privacy can be taken into account in the competition assessment of digital markets as a non-price parameter¹⁷⁰. For example, in Facebook/WhatsApp, the Commission revealed that one of the main drivers of competitive interaction between consumer communications apps is the functionality of privacy and security,

162 Decision (EC), IV/33.544, *British Midland/Aer Lingus*, §25.

163 Decision (EC), 98/190/EC, IV/34.801, *FAG/Flughafen Frankfurt/Main AG*, §§74-98; Joined cases C-241/91 P and C-242/91 P, *Magill*, EU:C:1995:98, §23.

164 Case T-201/04, *Microsoft*, EU:T:2007:289, §§691-695.

165 Ncuve et al, 2020: 1.

166 As suggested by Schoening, on https://www.youtube.com/watch?v=QR1yAQsV5ow&list=PLYBGv yEYB-NlRT56bYYgtWibQ_Nm51VpX-&index=9.

167 Regulation (EU) 2016/679, of 27 April 2016 (hereinafter, *GDPR*). This Regulation applies to the processing of personal data in the context of the activities of an establishment of a controller or a processor in the EU, regardless of whether the processing takes place in the Union or not. See Article 3.º GDPR.

168 According to Article 4.º GDPR, “personal 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”.

169 Article 5.º, (f) GDPR.

170 Unekbas, 2022: 139-143; Volmar & Helmdach, 2018: 207.

and that the “*importance of which varies from user to user but which are becoming increasingly valued*”¹⁷¹. Also, in *Microsoft/LinkedIn*, the Commission revealed that privacy is an important parameter of competition and driver of customer choice in the market for PSN services¹⁷².

However, the EU Institutions’ position has been clear: any privacy-related concerns must be assessed by EU data protection rules and not competition rules¹⁷³. This can be explained by the fact that, while data protection rules aim to protect individuals’ fundamental rights and freedoms, namely their right to data privacy, competition law protects the structure of competition and consumer welfare¹⁷⁴.

In respect to Private Blockchains, one could argue that an obligation to give access to such system would be against its characteristics and the whole purpose of its existence which is, among other things, to control who enters the space where private information may be stored or exchanged. However, as in non-technological facilities, if a private blockchain is found to be an “essential facility” to competition – meaning it is not replaceable and there are no alternatives to it – we believe that the user’s interest in maintaining data privacy should not prevail over the development of a secondary market, which ultimately benefits consumers. Besides, since private blockchains may be designed to restrict the number of members that can see specific information, data privacy may, in principle, be ensured through technical changes. Therefore, we believe that data privacy should not be admitted as an objective justification to a refusal of access to a private blockchain.

171 Decision (EC), M.7217, *Facebook/WhatsApp*, §87. As an example, “*after the announcement of WhatsApp’s acquisition by Facebook and because of privacy concerns, thousands of users downloaded different messaging platforms, in particular Telegram which offers increased privacy protection*”. See Decision (EC), M.7217, *Facebook/WhatsApp*, p. 24, footnote 79.

172 Decision (EC), M. 8124, *Microsoft/LinkedIn*, p. 77, footnote 330.

173 Decision (EC), M.7217, *Facebook/WhatsApp*, §164; Decision (EC), M.7813, *Sanofi/Google/DMI JV*, §70. Nevertheless, it is important to note that the control of personal data may be relevant for the appraisal of mergers and may be used as a way for dominant firms to exploit “economies of aggregation” and create barriers to entry. See: Hustinx, 2014: 29-31.

174 At the same time, Margrethe Vestager has stated that competition and data protection may have different tools, but have common goals, such as “innovation”. See: Margrethe Vestager’s Speech, available on <https://www.youtube.com/watch?v=410PoVsQ6SQ&t=913s>. More recently, in *Meta Platforms’ Case* (C-252/21, *Meta Platforms*, EU:C:2023:537), the ECJ held that “(…) in the context of the examination of an abuse of a dominant position by an undertaking on a particular market, it may be necessary for the competition authority of the Member State concerned to examine whether that undertaking’s conduct complies with rules other than those relating to competition law, such as the rules on the protection of personal data laid down by the GDPR”.

5. CONCLUSION

Given its potentialities, Blockchain technology is capable of hosting digital markets in various sectors such as finance and entertainment (e.g., games), in which crypto currency is used as a way of paying for products or services.

To define relevant markets, factors such as the type of the blockchain (monocentric or platform), the layer impacted by the anticompetitive practice and the product/service provided by the blockchain should be taken into account. Moreover, to define the market power between blockchains, one may consider various factors, such as the number of users, the number of transactions recorded, the number of blocks or the amount of revenues.

Although the original concept of Blockchain was based on a decentralized system with no single authority, the evolution of this technology led to the creation of private systems, which can be designed in a centralized way where a ruler(s) might have the power to select and verify participants who desire to enter into the group.

Since private blockchain's main characteristic is the ability to restrict its participants, competition issues regarding refusals to access this private system may occur. In such case, if the ruler of the private blockchain is a dominant firm, such refusal may amount to an abuse of dominant position if the requirements of Article 102.^o TFEU are verified and the conditions developed by the EU Institutions regarding the essential facility doctrine are met, which differ whether the object of refusal was a tangible asset or an IP right.

In the case of tangible assets, the refusal may be considered an abuse if: (i) the refusal should be likely to eliminate all competition; (ii) the service should be indispensable to carrying on the business on the requested market, meaning there was no actual or potential substitute; and (iii) such refusal cannot be objectively justified. In the case of IP rights, the refusal might be amounted to an abuse if: (1) there is an essential facility; (2) the refusal would have to prevent the emergence on the market of a new product, with potential consumer demand; (3) there was no objective justification; and (4) the refusal would exclude all competition in the requested market.

Among the types of refusal analysed, we believe that refusals to deal regarding IP rights will be popular in the blockchain reality, especially regarding software IP rights, since blockchain-based applications to Intellectual Property Authorities have increased in the last few years, especially in countries like the U.S.A. and China.

Lastly, we analysed if data privacy could be alleged as an objective justification to a refusal to access a private blockchain. We argue that the user's

interest in maintaining data privacy should not prevail over the development of a secondary market in the blockchain system, which ultimately benefits consumers and that data privacy concerns may, in principle, be solved through technical changes, by restricting the number of members that see such sensitive information. Therefore, data privacy should not be admitted as an objective justification to a refusal of access to a private blockchain.

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