



The Essential Facilities Doctrine, Intellectual Property Rights, and Access to Big Data

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Abstract This paper analyzes the criteria for applying the essential facilities doctrine to intellectual property rights and the possibility of applying it in cases where Big Data is the alleged essential facility. It aims to answer the research question: “What are the specifics of the intellectual property criteria in essential facilities cases and are these criteria applicable to Big Data?” It points to the semantic openness of the “new product” and “technical progress” conditions that have been developed for assessing whether an intellectual property right constitutes an essential facility. The paper argues that the intellectual property criteria are not applicable in all access to Big Data cases because Big Data is not necessarily protected by copyright. While a set of Big Data could be protected by copyright if certain conditions are met, even in such cases the lack of intrinsic value of Big Data significantly limits the applicability of the intellectual property criteria.

Keywords Essential facilities doctrine · Intellectual property rights · Big Data · New product condition · Technical progress condition

1 Introduction: Structure and Methodology

The essential facilities doctrine (hereinafter: the doctrine) is one of the most controversial aspects of competition law, with fierce supporters on one side and opponents¹ on the other. Some argue that application of the doctrine opens markets to entry by new companies, which increases market competition, lowers prices, and

¹ See Gerber (1988); Kuhn (2014).

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increases the quality of products² offered; while others contend that the possibility of mandatory access adversely affects companies' incentives to invest and is an excessive restriction on the economic freedom of companies that control essential facilities.³ Although the doctrine was initially intended to cover access to tangible facilities such as ports, bridges, railroads, etc., it was later extended to services and some intellectual property rights (IPRs), namely copyrights and patents.⁴

In the European Union (EU), the criteria for applying the doctrine to IPRs differ from the criteria for applying it to tangible facilities and services. This paper examines the criteria for the application of the doctrine to IPRs in the EU, analyzes their peculiarities, and points out some ambiguities that still exist. All this with the aim of answering the research question: "What are the specifics of the intellectual property criteria in essential facilities cases and are these criteria applicable to Big Data?"

This paper is divided into four main parts. The first of these clarifies the basic elements and concepts with which the paper deals. It analyzes the doctrine and gives an overview of its genesis with a focus on intellectual property cases, and of the different criteria for its application as developed by the ECJ⁵ in its jurisprudence, where three different groups of criteria can be identified. The second part examines the specificities of IPRs as essential facilities, analyzing the relationship between competition law and IPRs, as well as the new product and technical progress conditions used to decide whether an IPR is an essential facility, pointing out their semantic indeterminacy and the problems in their practical application. The third part of the paper explores the possibilities for applying intellectual property criteria to Big Data. First, it is pointed out that recent legislative developments at the EU and national levels prove that Big Data can be an essential facility, while at the same time several peculiarities of Big Data compared to other essential facilities – tangible and intangible – are identified. This part of the paper argues that intellectual property criteria should not be applied indiscriminately to Big Data, as a set of Big Data is not necessarily protected by copyright. Moreover, due to the characteristics of Big Data – namely its lack of intrinsic value – and the markets driven by Big Data – in particular their innovative and propulsive nature – it is not appropriate to indiscriminately apply the new product and technical progress conditions in all cases where Big Data is the alleged essential facility. The fourth and final part of the paper summarizes the findings to answer the research question posed above.

² To make the text clearer and avoid unnecessarily complicated sentences, the article uses the term "product" to refer to both products and services. It is important to note that most "products" offered in Big Data-driven markets are actually services. However, the distinction is not critical to this article and will therefore not be elaborated upon.

³ Since the companies holding a dominant position in the upstream market face a potential access obligation to assets they have developed through investment, while the companies seeking access to the assets in question refuse to develop a substitute because it is cheaper for them to access an existing asset by applying the doctrine.

⁴ Despite this, the term "intellectual property conditions" is widely used in literature. This contribution follows this established convention. For more *see* section 4.2.1 of this paper.

⁵ The abbreviation "ECJ" is used as a generic term for the Court of Justice of the European Communities, the Court of Justice of the European Union and the General Court, unless expressly indicated otherwise.

The central research methods on which this paper is based are the normative-dogmatic method, used for analyzing the relevant factors as they are (*de lege lata*), and the axiological method, which is used for analyzing the adequacy of the criteria for activating the doctrine beyond the limits of existing general and abstract acts and case law (*de lege ferenda*). To a lesser extent, the comparative method is also used to analyze the position of Big Data as an essential facility in different legal systems. Within the three core research methods mentioned above, several instrumental methods are applied, namely the methods of collecting and analyzing information and discarding irrelevant information; the methods of description, classification, and abstraction; the methods of induction and deduction; and analytical and logical reasoning.⁶

2 Setting the Scene

2.1 The Essential Facilities Doctrine

The doctrine is an “idea that the owner of a facility which is not replicable by the ordinary process of innovation and investment, and without access to which competition on a market is impossible or seriously impeded has to share it with a rival.”⁷ It was first developed by the US Supreme Court in the 1912 *Terminal Railroad Combination* case⁸ and transplanted into the EU legal system in the early 1970s. By that time it was already losing traction in the US, where it was heavily criticized by the Chicago school of competition analysis and branded as one of the most problematic, incoherent, and uncontrollable elements of competition law.⁹ The doctrine was de facto banned from the US legal system by the Supreme Court’s 2004 *Trinko* ruling, which cited, *inter alia*, Areeda’s seminal article “Essential facilities: an epithet in need of limiting principles.”¹⁰ However, the doctrine flourished in the EU, where the German ordoliberal school of economics is a strong influence.¹¹ A wide range of tangible and intangible facilities have been deemed essential under the case law of the ECJ and the European Commission (EC), such as chemicals necessary for the production of other chemicals,¹² tangible and intangible

⁶ The methodology of the paperwork follows the methodological guidelines as described by: Kerschner (2006); McConville and Chui (eds) (2007); Schleur (2006).

⁷ Craig and de Burca (2015), p. 1074.

⁸ *United States v. Terminal R.R. Ass’n*, 224 U.S. 383 (1912).

⁹ Hovenkamp (2011), p. 336.

¹⁰ Areeda (1989), p. 841.

¹¹ The ordoliberal school of economics advocates a strong role of public authorities in protecting market competition and is therefore lenient toward government intervention in the market. Moreover, the main goal of ordoliberalism is not the protection of economic efficiency, but of market competition as an institution necessary for the protection of the personal liberty of individuals. Thus, ordoliberalism aims to limit the market power of individual companies and to allow new companies to enter the market. For a more detailed analysis of ordoliberalism, see Talbot (2016), p. 267.

¹² *Istituto Chemioterapico Italiano and Commercial Solvents v. Commission*, Joined Cases 6 and 7-73, ECLI:EU:C:1974:18.

airport infrastructure,¹³ ports,¹⁴ rail infrastructure,¹⁵ and newspaper delivery services.¹⁶ Importantly, the status of an essential facility has also been accorded to IPRs.¹⁷ The doctrine can be invoked in situations involving two vertically related markets, one upstream and one downstream, where the product of the upstream market is an essential input to the activities in the downstream market. In other words, activity in the downstream market is not possible without access to the product of the upstream market because there are no actual or potential substitutes for it. Since refusing to supply (or grant access to) an essential input is a form of abuse of market dominance, the company refusing access must be dominant in the upstream market for the doctrine to apply. At the same time, it must also be at least present on the downstream market.¹⁸

2.2 Criteria for the Application of the Essential Facilities Doctrine

Despite the frequent application of the doctrine by the ECJ and the EC, especially from the 1980s to the early 2000s, no single set of criteria for applying the doctrine has developed. Rather, the criteria for its application vary from case to case and from facility to facility. A careful analysis of the relevant case law, however, reveals that there are broadly three types of criteria for applying the doctrine, depending on the nature of the facility in question.

2.2.1 The Bronner Criteria

Although the criteria set forth by the ECJ in its *Bronner* ruling have only been fully applied in a handful of cases,¹⁹ they are the gold standard in essential facility cases and traditionally form the starting point of any analysis. In the *Bronner* case newspaper delivery services operated by the Mediaprint publishing company, which had a 46% share of the Austrian daily newspaper market (downstream market), were the alleged essential facility. Oskar Bronner, publisher of the competing daily newspaper “Der Standard,” demanded access to the newspaper delivery services,

¹³ *Alpha Flight Services v. Aéroports de Paris*, 98/513/EC; *Flughafen Frankfurt v. Main AG*, 98/190/EC.

¹⁴ *Port of Rødby*, 94/119/EC; *B&I v. Sealink*, 94/19/EC.

¹⁵ *European Night Services Ltd v. Commission*, T 374/94, ECLI:EU:T:1998:198.

¹⁶ *Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Mediaprint Zeitungsvertriebsgesellschaft mbH & Co. KG and Mediaprint Anzeigengesellschaft mbH & Co.*, Case C-7/97, ECLI:EU:C:1998:569.

¹⁷ *AB Volvo v. Erik Veng (UK) Ltd*, Case C-238/87, ECLI:EU:C:1988:477; *Consorzio Italiano della Componentistica di Ricambio per Autoveicoli and Maxicar v. Régie des Usines Renault*, Case 53/87, ECLI:EU:C:1988:472; *Radio Telefís Éireann (RTE) and Independent Television Publications Ltd (ITP) v. Commission*, Joined Cases 241/91 P and C-242/91 P, ECLI:EU:C:1995:98; *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, Case C-418/01, ECLI:EU:C:2004:257; *Microsoft v. Commission*, Case T-201/04, ECLI:EU:T:2007:289.

¹⁸ As this article does not aim to give an in-depth analysis of the doctrine only its mere basics are explained. For a more in depth look at the doctrine see e.g. Beckmerhagen (2002); Bergman (2001); Bouchagiar (2007); Eilmansberger (2005); Doherty (2001).

¹⁹ Those being the *Bronner* case itself; *Clearstream v. Commission*, Case T-301/04, ECLI:EU:T:2009:317; *GVG v. FS*, COMP/37.685.

claiming that they were an essential facility that was indispensable for competition on the downstream market. The ECJ set out an exhaustive list of conditions that must be met for a facility to be considered essential and, as such, subject to the doctrine's obligations. Accordingly, (i) the refusal to supply the facility must preclude all competition on the downstream market, (ii) there must be no objective justification for the refusal, and (iii) the facility must be indispensable for the activity on the downstream market, i.e., there must be no actual or potential substitutes.²⁰ The latter condition built on the ECJ's ruling in *Night Services*, which held that a facility was indispensable only if there was no substitute for it. The *Bronner* ruling reflects the ECJ's strong preference for competition for the market as opposed to competition in the market,²¹ and accordingly sets high standards for the application of the doctrine. It can be concluded that the *Bronner* criteria apply to traditional²² tangible facilities as well as services, as confirmed by the ECJ in its 2021 ruling in *Slovak Telekom*.²³ Therein, the ECJ ruled that the *Bronner* criteria were not applicable in the case at hand, as access to the alleged essential facility (local loop) was already guaranteed by *ex ante* regulation, which, *a contrario*, means that the *Bronner* criteria are applicable in the absence of such regulation.²⁴

2.2.2 The Magill and IMS Health Criteria and Intellectual Property Rights

For about 15 years after the doctrine was introduced into the EU legal system the status of an essential facility was granted only to tangible facilities and services. However, this changed with the 1988 ECJ judgments of *Volvo v. Veng*²⁵ and *Renault v. Maxicar*.²⁶ The factual situation was similar in both cases. The owners of design rights for automotive spare parts (Volvo and Renault) refused to grant licenses for the manufacture, import, and sale of spare parts to independent manufacturers without their consent, which, according to the independent manufacturers, constituted an abuse of market dominance. The ECJ concluded that the “authority of a proprietor of a protective right in respect of an ornamental model to oppose the manufacture by third parties, for the purposes of sale on the internal market or export, of products incorporating the design or to prevent the import of

²⁰ However, it is not sufficient that the facility in question is the most optimal facility from an economic perspective, as access to or establishment of substitute facilities must be at least economically impracticable. In addition, the ECJ has adopted an objective test for the absence of actual or potential substitutes. Accordingly, the subjective impossibility of the applicant company being able to create a substitute (due to its economic weakness or for other reasons) is not relevant, as the acquisition of a substitute must be impossible for a company with a comparable market position as the controlling company. This requirement sets a high bar for the indispensability of a facility. For further information, see de Stree and Vegis (1999).

²¹ Doherty (2001).

²² The term “traditional facilities” is used to describe facilities that are not connected to digital markets.

²³ *Slovak Telekom v. Commission*, Case C-165/19 P, ECLI:EU:C:2021:239.

²⁴ Czapracka (2021), pp. 279, 280.

²⁵ *AB Volvo v. Erik Veng (UK) Ltd*, Case 238/87, ECLI:EU:C:1988:477.

²⁶ *Consorzio Italiano della Componentistica di Ricambio per Autoveicoli and Maxicar v. Régie des Usines Renault*, Case 53/87, ECLI:EU:C:1988:472.

such products manufactured without its consent in other Member States constitutes the substance of his exclusive right.”²⁷ Thus, refusal to license does not constitute an abuse of dominance *per se*. However, refusal to license may constitute an abuse of market dominance if it leads to abusive conduct, such as “an arbitrary refusal to deliver spare parts to independent repairers, the fixing of prices for spare parts at an unfair level or a decision no longer to produce spare parts for a particular model even though many cars of that model remain in circulation, provided that such conduct is liable to affect trade between Member States.”²⁸

Neither judgment developed abstract criteria for assessing the character of IPRs as essential facilities; this was first done in the ECJ’s *Magill* judgment, where the alleged essential facility were weekly television programs of individual television stations in the Republic of Ireland used to create a consolidated television program of all television stations in the Republic of Ireland. Although it was not entirely clear throughout the proceedings that the alleged essential facility was in fact protected by IPRs,²⁹ the ECJ introduced the new product condition. This condition is only applicable in cases where the alleged essential facility is protected by IPRs and requires that access to the essential facility (its licensing) is necessary for the offering of a new product for which there is at least potential consumer demand.³⁰ The criteria for the doctrine’s application in intellectual property cases were further elaborated in the *Ladbroke* ruling,³¹ stating that the doctrine cannot be invoked if the controlling company is not at least active in the downstream market and/or if the company seeking access has a dominant position in that market.³² The ECJ reaffirmed and developed the *Magill* criteria in its judgment in *IMS Health*, with the alleged essential facility being the 1860 brick structure, protected by IPRs and developed by the company IMS Health. The 1860 brick structure was used to monitor information on the sale of pharmaceutical products in Germany and became an industry standard. It was therefore not possible to compete on the downstream market (sales of pharmaceutical products in Germany) without having access to this facility. The ruling states that a facility protected by IPRs is essential within the meaning of the doctrine if three cumulative criteria are met, namely that the refusal “prevents the emergence of a new product for which there is potential consumer demand, that it is unjustified, and that it is likely to foreclose all competition in a

²⁷ *Ibid.*, para. 11. The same wording is used in *AB Volvo v. Erik Veng (UK) Ltd*, Case C-238/87, ECLI:EU:C:1988:477, para. 8, where it is stated that: “The right of the proprietor of a protected design to prevent third parties from manufacturing and selling or importing, without its consent, products incorporating the design constitutes the very subject-matter of his exclusive right.”

²⁸ *Consorzio Italiano della Componentistica di Ricambio per Autoveicoli and Maxicar v. Régie des Usines Renault*, Case 53/87, ECLI:EU:C:1988:472, para. 16. See also *AB Volvo v. Erik Veng (UK) Ltd*, Case C-238/87, ECLI:EU:C:1988:477, para. 9.

²⁹ Ibáñez Colomo (2019), p. 546; Baert (2020), p. 23.

³⁰ See *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v. Commission*, Joined Cases 241/91 P and C-242/91 P, ECLI:EU:C:1995:98, paras. 52–56.

³¹ *Tiercé Ladbroke*, Case T-504/93, ECLI:EU:T:1997:84.

³² Korah (2002), p. 814.

secondary market.”³³ It remains unclear, however, whether the company holding the IPR could successfully argue that the temporary monopoly on the use of the idea it protects is objectively justified because it is necessary to cover the research and development costs incurred.³⁴

2.2.3 *The Microsoft Criteria*

Prior to the ECJ’s 2007 *Microsoft* ruling, the criteria for applying the doctrine to both tangible facilities and services and to facilities protected by IPRs were relatively clear. All of this changed with the aforementioned judgment, which led to continued uncertainty regarding the criteria necessary for the application of the doctrine. As a result, the judgment marked the beginning of an almost 15-year hiatus in the application of the doctrine by both the EC and the ECJ.³⁵

Microsoft had a 90% market share in the client PC operating system market (upstream market) and refused to grant the interoperability information that companies needed to compete in the work group server operating system market (downstream market) as it entered that market itself. Since Windows client PC operating systems were an industry standard, interoperability with those systems was necessary to operate in the workgroup operating system market. The alleged essential facility was interoperability information (protocols) protected by IPRs. The ECJ upheld the EC’s decision³⁶ in all major points and ruled that Microsoft had abused its dominant position in the upstream market. In addition, the ECJ modified the *IMS Health* criteria in two important respects. First, it discarded the new product condition and replaced it with the technical progress condition, stating that “the circumstance relating to the appearance of a new product, as envisaged in *Magill* and *IMS Health*, paragraph 107 above, cannot be the only parameter which determines whether a refusal to license an intellectual property right is capable of causing prejudice to consumers within the meaning of Art. 82(b) EC. As that provision states, such prejudice may arise where there is a limitation not only of production or markets, but also of technical development.”³⁷ In other words, it was no longer necessary to show that the refusal to license prevented the emergence of a new product, but only that it impeded technical progress. Second, the ECJ also discarded the requirement that the refusal to license precludes all competition in the

³³ *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, Case C-418/01, ECLI:EU:C:2004:257, para. 38.

³⁴ Andreangeli (2009), p. 585.

³⁵ An exception being: *Lietuvos geležinkiai v. Commission*, Case T-814/17, ECLI:EU:T:2020:545. However, it should be noted that the essential entity in the said case was a railroad, which is a very traditional essential facility whose character as such is not disputed.

³⁶ *Microsoft*, COMP/C-3/39.530.

³⁷ *Microsoft v. Commission*, Case T-201/04, ECLI:EU:T:2007:289, para. 647.

downstream market, finding that it was only necessary that the refusal precludes all effective competition in that market.³⁸

3 Intellectual Property Rights as Essential Facilities

3.1 Competition Law and Intellectual Property Law

Both competition law and intellectual property law aim to improve consumer welfare, albeit with different approaches. While competition law aims to improve market efficiency,³⁹ leading to lower prices and higher quality products, intellectual property law excludes third parties from using an idea protected by IPRs. This creates a *de facto* temporary monopoly on the use of that idea by its creator, protecting the creator's incentives to invest in future innovations that lead to lower prices and better product quality,⁴⁰ while also increasing the incentives for competing companies to invest in the development of new competing products (substitutes). Before the idea protected by IPRs enters the public domain, there is a collision between the interest of the originator of the idea in its monopolistic exploitation and the interests of third parties to gain access to it themselves. This collision is addressed in part by the doctrine.⁴¹

In the EU, the criteria for applying the doctrine in intellectual property cases have traditionally been stricter than the criteria for applying it in other essential facility cases, because they take into account the particular interest of the originator of the idea to monopolize the idea that is the result of his investment in the development of innovations.⁴² In intellectual property cases, therefore, the doctrine can be applied

³⁸ An analysis of the above condition is beyond the scope of this article. Suffice it to say that, unlike the *IMS Health* condition of exclusion of all competition, some form of competitive pressure may be present even after the denial to license, as long as it is not effective. The reason for the more lenient condition is that some companies in the downstream market, such as Linux, required only a very limited degree of interoperability with Windows client PC operating systems. In other words, if the condition of excluding all competition had been retained, the doctrine could not have been applied because there would have been some competition in the downstream market from companies whose products required only a limited degree of interoperability with Windows client PC operating systems.

³⁹ Market efficiency is not a unified concept, as there are different types of market efficiency, namely allocative, productive, and innovative efficiency. There is a trade-off between the different types of market efficiency, which means that a company cannot be perfectly allocatively, productively, and innovatively efficient.

⁴⁰ Kitch (1977) p. 285.

⁴¹ AG Jacobs specifically noted the danger that mandatory access to IPRs could hinder innovation. See Opinion of AG Jacobs in: *Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Mediaprint Zeitungsvertriebsgesellschaft mbH & Co. KG and Mediaprint Anzeigengesellschaft mbH & Co. KG.*, Case C-7/99, ECLI:EU:C:1998:264, para. 62, stating that: "In assessing such conflicting interests particular care is required where the goods or services or facilities to which access is demanded represent the fruit of substantial investment. That may be true in particular in relation to refusal to license IPRs. Where such exclusive rights are granted for a limited period, that in itself involves a balancing of the interest in free competition with that of providing an incentive for research and development and for creativity."

⁴² However, it would be a mistake to assume that competition law is not applicable in intellectual property cases.

only in situations where IPRs do not provide incentives for innovation, but rather hinder it. If this is the case, the ECJ and EC seek to strike a fair balance between the legitimate interests of the IPR holder and the company seeking access,⁴³ while taking the impact of mandated access to the IPR-protected idea on incentives to invest in innovation into account.⁴⁴

Despite all the above, I believe that the introduction of stricter criteria for the application of the doctrine in intellectual property cases is not justified because the criteria for the doctrine's application to tangible facilities and services, as set forth in the *Bronner* ruling, already require a high threshold being met. It is undisputed that the development of new ideas protected by IPRs may require significant investment and that it is both economically and socially desirable to protect the incentives of companies to invest in innovation. However, the creation of tangible facilities and services also involves high start-up costs. Consider, for example, the cost of building a port or establishing a nationwide newspaper delivery system. In addition, it is not easy to infringe IPRs on an industrial scale, as this requires a significant investment of time, financial resources, and know-how that most companies do not have.⁴⁵

3.2 On the New Product and Technical Progress Conditions

As explained above, the main difference between the criteria for applying the doctrine in intellectual property cases, as opposed to cases involving access to tangible facilities and services, is the addition of the new product condition, which was discarded in favor of the technical progress condition in the *Microsoft* ruling. Under the new product condition, the interest of the company seeking access outweighs the interest of the IPR holder only if the requesting company will offer a new product based on the idea protected by the IPR, for which there is actual or at least potential consumer demand, i.e., in situations where the mandated access will promote innovation.⁴⁶ In my view, the term “new product” is semantically vague and open to interpretation, as it can be difficult to determine whether the product offered is really “new” or just an improvement on an existing product.⁴⁷ The difficulties in applying the new product condition are exacerbated by the fact that

⁴³ Evrard (2004), p. 497.

⁴⁴ In the US legal system, even before the Supreme Court's *Trinko* ruling, it was not possible to invoke the doctrine in intellectual property cases, as the *Xerox* ruling shows. For more, see Chen (2014), p. 533.

⁴⁵ Ritter (2005), p. 290.

⁴⁶ *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, Case C-418/01, ECLI:EU:C:2004:257, para. 49 states that 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.”

⁴⁷ Hatzopoulos (2006), p. 22.

there is no legal or economic definition of a “new product.”⁴⁸ An analysis of existing case law leads to the conclusion that for a product to be a “new product” it is not required that it opens up a new, previously non-existent market, but rather that it differs from the already existing product in its essential characteristics. However, an entirely new market may be opened up – as demonstrated in the *Magill* case – in which the market for consolidated weekly television programs could only be opened up after the acquisition of the essential facility in question (weekly television programs from individual television stations). The situation was different in the *IMS Health* and *Microsoft* cases, where the two downstream markets existed beforehand, but it was not possible for companies other than IMS Health and Microsoft to operate on them, because the two companies had a *de facto* monopoly on the use of the essential facility, which was also an industry standard.⁴⁹

In my view, the scope of the technical progress condition assumed in the *Microsoft* ruling is even more vague and ambiguous than that of the new product condition. First, it is unclear whether the condition was exclusively tailored to the present case, which involved a very specific state of affairs, or whether it is more generally applicable. And even if it were generally applicable, in the absence of relevant case law on the subject it is unclear what level of technical progress would be sufficient for the doctrine to apply. In other words, it is not clear whether a minimum degree of technical progress would be sufficient or whether the technical progress would have to be substantial.

4 Criteria for the Assessment of Big Data under the Essential Facilities Doctrine

4.1 Big Data as Essential Facility

Despite the importance of Big Data, there is no universally accepted definition of what Big Data actually is. However, this paper adopts the definition of the EC, which refers to Big Data as “large amounts of different types of data produced with high velocity from a high number of various types of sources, whose handling requires new tools and methods, such as powerful processors, software and algorithms.”^{50,51} The most important characteristics that distinguish Big Data from “normal” data are its volume, its diversity, and the speed with which new data is collected. Big Data includes structured and unstructured data from a variety of sources, such as social media, IoT devices and enterprise applications. The data

⁴⁸ Geradin (2004), p. 1531.

⁴⁹ IMS Health and Microsoft have transferred their dominant positions from upstream to downstream markets.

⁵⁰ Communication from the Commission: Towards a thriving data-driven economy, SWD(2014) 214 final, p. 4.

⁵¹ Big Data has also been defined, for example, as structured or unstructured data whose processing requires specialised analytical tools. See van Schendel and van der Sloot (2016), p. 113.

generated by these sources is huge, and is growing at an exponential rate.⁵² Big Data is very different from traditional essential facilities – both tangible facilities and services, as well as IPRs – because both its marginal value⁵³ and value over time⁵⁴ are decreasing and it is generally a non-rivalrous facility.⁵⁵ Moreover, Big Data has no intrinsic value, meaning that it is, *per se*, useless. The true value of Big Data lies in the information it contains, which are obtained using advanced analytical tools. Therefore, before analyzing a set of Big Data,⁵⁶ only more or less accurate guesses about the nature of the information it contains are possible. Although Big Data is omnipresent in most cases and can theoretically be collected by all market participants, it is not widely available because collecting and processing Big Data involves extremely high (prohibitive) investments.⁵⁷ However, once such capabilities are established, the economies of scale associated with Big Data collection and processing are virtually infinite, and the economic efficiency of data processing grows exponentially as the total amount of data collected and processed increases.⁵⁸ However, one can also imagine situations where Big Data is neither omnipresent nor widely available because a single company controls all relevant data, as in the cases of *PeopleBrowsr*⁵⁹ and *HiQ Labs*⁶⁰ in the US.⁶¹

⁵² For more information on the characteristics of Big Data see Stucke and Grunes (2016).

⁵³ This means that the value of additional data decreases as the total amount of data contained in a set of Big Data increases.

⁵⁴ A set of Big Data is particularly valuable to companies when the data it contains is fresh, as such data best reflects consumer interests and preferences. Over time, data that was once valuable loses value or becomes completely irrelevant.

⁵⁵ In general, one company's use of a set of Big Data does not preclude another company from using the same data, as opposed to a port that can only be used by a certain number of ships at a time. However, there are situations where the company that controls a set of Big Data excludes other companies from using it. For more on excluding competitors from data use, see Graef (2016), p. 480.

⁵⁶ Big Data and a set of Big Data are related concepts. Although both terms refer to large amount of data, there is a difference between the two terms that is important to understand. A set of Big Data is a subset of the larger universe of Big Data and can be used for a variety of purposes, such as analytics, machine learning and decision making. A set of Big Data is created for a specific business problem or opportunity. Unlike Big Data, a set of Big Data is typically smaller and focused on a specific problem.

It is also important to distinguish between a set of Big Data and a dataset. A dataset is a collection of data that has been organised and structured for a specific purpose. The data in a dataset is usually structured and ordered. One of the main differences between a dataset and a set of Big Data is the size of the data. A dataset is usually smaller and more manageable, while a set of Big Data is larger and more complex. This difference in size affects the way the data is processed and analysed. A dataset can be processed and analysed using traditional methods, while a set of Big Data requires new and innovative techniques and technologies for processing and analysis.

⁵⁷ Rubinfeld and Gal (2017), p. 360.

⁵⁸ OC (2021), p. 131.

⁵⁹ 3:12-cv-06120-EMC (United States District ECJ – Northern District of California).

⁶⁰ *hiQ Labs, Inc. v. LinkedIn Corp.*, No. 17-16783 (9th Cir. 2019).

⁶¹ The relevant data that formed the essential facility for PeopleBrowsr's and HiQ Labs' activities in the downstream markets were controlled exclusively by Twitter and LinkedIn, respectively, because they were very specific, and no other company had comparable data.

The EC has avoided taking a clear position on the possibility that Big Data is an essential facility, although it has had the opportunity to do so in the *Facebook/WhatsApp*,⁶² *Google/DoubleClick*⁶³ and *Telefónica UK/Vodafone UK/Everything Everywhere/JV*⁶⁴ cases. However, legal developments at the EU level and in several Member States clearly recognize that Big Data can be an essential facility. For example, the EU Digital Markets Act requires gatekeepers to, *inter alia*, “provide business users and third parties authorized by a business user, at their request, free of charge, with effective, high-quality, continuous, and real-time access to, and use of, aggregated and non-aggregated data, including personal data, that is provided for or generated in the context of the use of the relevant core platform services or services provided together with, or in support of, the relevant core platform services by those business users and the end users engaging with the products or services provided by those business users.”⁶⁵ In addition, the Tenth Amendment to the German Act against Restraints of Competition⁶⁶ introduced a provision clarifying that (Big) Data⁶⁷ may be an essential facility, explicitly extending the definition of abuse of a dominant position to situations where the dominant company refuses access to sets of data⁶⁸ it controls. Accordingly, the provision of Art. 19, para. 4 provides the basis for data access claims by stating that: “An abuse (of market dominance) exists in particular if a dominant undertaking as a supplier or purchaser of a certain type of goods or commercial services refuses to supply another undertaking with such a good or commercial service for adequate consideration, in particular to grant it access to data, networks or other infrastructure facilities, and if the supply or the granting of access is objectively necessary in order to operate on an upstream or downstream market.” In addition, under the Tenth Amendment, Art. 20, para. 1a of the said act clarifies that a position of relative market power⁶⁹ “may also arise from the fact that an undertaking is dependent on accessing data controlled by another undertaking in order to carry out its own activities.” For a company that has relative market power, the provisions of Art. 19, para. 1 in

⁶² *Facebook v. WhatsApp*, COMP/M.7217.

⁶³ *Google v. DoubleClick*, COMP/M.4731.

⁶⁴ *Telefónica UK/Vodafone UK/Everything Everywhere/JV*, COMP/M.6314.

⁶⁵ 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, OJ L 265/1, Art. 6, para. 10.

⁶⁶ Gesetz gegen Wettbewerbsbeschränkungen in der Fassung der Bekanntmachung vom 26. Juni 2013 (BGBl. I S. 1750, 3245), das zuletzt durch Artikel 4 des Gesetzes vom 20. Mai 2022 (BGBl. I S. 730) geändert worden ist.

⁶⁷ The Act uses the term “Daten” which in German describes both traditional data and Big Data.

⁶⁸ Since the legislator has not specified to which types of data the term “data” refers, it can be concluded that it includes both “ordinary” data and Big Data.

⁶⁹ Relative market power (*relative Marktmacht*) is an element present in German and Austrian competition law. It presupposes the existence of a vertical relationship between two companies (company A in the upstream market and company B in the downstream market). If company A only has a dominant position vis-à-vis company B, but not vis-à-vis other companies, relative market power exists. Unlike a dominant position, where the dominant company can act independently of all competitors, the existence of relative market power requires that the company holding the position is able to act independently only with respect to a specific competitor.

conjunction with Art. 19, para. 2, point 1, which prohibit the abuse of market dominance, apply.⁷⁰ It can be concluded that the Tenth Amendment of the German Act against Restraints on Competition introduced the legal basis for data access claims both for cases where the controlling company enjoys a position of market dominance as well as where it only has relative market power. It does so by relying on the doctrine, confirming that sets of data can be an indispensable input for activity on a downstream market.

4.2 Application of the Intellectual Property Rights Criteria for the Assessment of the Nature of Big Data as an Essential Facility

As noted above, both the EC and the ECJ have yet to confirm the possibility that a set of Big Data constitutes an essential facility. Therefore, it is not clear which of the established criteria for evaluating the nature of a facility as essential (*Bronner*, *IMS Health* or *Microsoft*) should be used in such cases. Below, I argue that the criteria for assessing the nature of IPRs as essential facilities are not appropriate, although they were applied and to some extent reformulated in the *Microsoft* case, which involved digital markets.⁷¹

4.2.1 Big Data Is Not Necessarily Protected by Copyright

It must first be noted that in practice, the doctrine was only applied to facilities protected by patents and copyrights, and not by other IPRs.⁷² Despite this, when referring to the conditions for the application of the doctrine to patents and copyrights, the term “intellectual property conditions” is used in this paper, thus following the general usage as found in literature.⁷³ Moreover, due to its specificities a set of Big Data could only be protected by copyright in most

⁷⁰ With their exact wording being:

“(1) Any abuse of a dominant position by one or several undertakings is prohibited.

(2) An abuse exists in particular if a dominant undertaking as a supplier or purchaser of a certain type of goods or commercial services

1. directly or indirectly impedes another undertaking in an unfair manner or directly or indirectly treats another undertaking differently from similar undertakings without any objective justification.”

⁷¹ It should be noted, however, that the choice of the conditions under which the character of a set of Big Data would be assessed as an essential facility is not primarily a question of competition law, but rather of competition policy. If the given competition policy favors granting access to a set of Big Data, more lenient conditions will be applied, and conversely, if the given competition policy considers mandated sharing of Big Data to be disadvantageous, more stringent conditions will be applied. Many factors – such as the social, economic, and political climate in a given time – shape the form of the prevailing competition policy. It is therefore not possible to say which of the existing conditions would be applied or whether new conditions would be developed. This paper therefore does not attempt to assess which conditions are most appropriate or inappropriate for evaluating the nature of Big Data as an essential facility, but simply demonstrates why the *IMS Health* and *Microsoft* criteria are not appropriate to apply to Big Data in general.

⁷² See *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, Case C-418/01, ECLI:EU:C:2004:257, para. 38; *Microsoft v. Commission*, Case T-201/04, ECLI:EU:T:2007:289, paras. 121–130; 139, et. al.

⁷³ Chen (2014); Cotter (1999); Ginsburg, Geradin and Klovers (2019); Graef (2011).

cases.⁷⁴ Despite the lack of academic discourse and case law on this topic, it is my opinion that Big Data as a huge amount of structured and unstructured data does not, *per se*, meet the criteria required for copyright protection. However, depending on the nature of the data and how it was created and collected, copyright protection could extend to Big Data in certain situations.⁷⁵ This would be the case if the set of Big Data in question was unique and was created by the company's own research and development efforts. In other words, only Big Data in the form of a set of Big Data created by some kind of creative effort that goes beyond the mere collection and classification of the data it consists of could be protected by copyright.

The *IMS Health* and *Microsoft* criteria were developed specifically with the goal of safeguarding facilities protected by copyrights and patents. In terms of a teleological interpretation, I do not believe it is appropriate to extend the reach of these criteria beyond their intended scope to also apply them to alleged essential facilities, which are not protected by either copyrights or patents. Thus, the *IMS Health* and *Microsoft* criteria could apply to Big Data if it is in the form of a set of Big Data created by some sort of creative input. Whether or not this is the case depends, of course, on the specifics of each such set. However, it is possible to rely on the Database Directive⁷⁶ for further clarification.⁷⁷

According to the Database Directive, a database enjoys copyright protection if the “selection or arrangement of its content, constitutes the author’s own intellectual creation,”⁷⁸ with recital 16 of the said Directive clarifying that “no criterion other than originality in the sense of the author’s intellectual creation should be applied to determine the eligibility of the database for copyright protection, and in particular no aesthetic or qualitative criteria should be applied.” If a dataset is not protected by copyright, it can nevertheless be covered by the Database Directive, but only if the data are “arranged in a systematic or methodical way and individually accessible by

⁷⁴ This is also recognized by the Database Directive which states that “databases which, by reason of the selection or arrangement of their contents, constitute the author’s own intellectual creation shall be protected as such by copyright” in paragraph 1 of Art. 3.

⁷⁵ However, one must distinguish between a set of Big Data and the data that constitute a set of Big Data. While the protection of a set of Big Data by copyright is discussed below, it is also important to note that the data that constitute a set of Big Data may be protected by copyright in their own if they are an expression of individual creativity, *e.g.*, photographs, self-authored texts, musical works, etc. As a rule, users of multi-sided internet platforms must consent to the transfer of copyrights in such works. See Facebook, Statement of Rights and Responsibilities, which states: “For content that is covered by intellectual property rights, like photos and videos (IP content), you specifically give us the following permission, subject to your privacy and application settings: you grant us a non-exclusive, transferable, sub-licensable, royalty-free, worldwide license to use any IP content that you post on or in connection with Facebook (IP License). This IP License ends when you delete your IP content or your account unless your content has been shared with others, and they have not deleted it.” <https://www.facebook.com/legal/terms/previous>. Accessed 3 January 2023.

⁷⁶ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ L 77/20.

⁷⁷ A database refers to a structured collection of data that is stored and organized for easy access and retrieval. Also see *Ryanair Ltd v. PR Aviation BV*, Case C-30/14, ECLI:EU:C:2015:10; *Fixtures Marketing Ltd v. Organismos prognostikon agonon podofairou AE (OPAP)*, Case C-444/02, ECLI:EU:C:2004:697.

⁷⁸ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ L 77/20, Art. 3, para 1.

electronic or other means.”⁷⁹ If the creation of the said database represents a “qualitatively and/or quantitatively substantial investment⁸⁰ in either the obtaining, verification, or presentation of the contents,”⁸¹ this database enjoys *sui generis* protection. The Database Directive thus establishes a two-tiered approach to the IPR protection of databases, which may be protected either by copyright, *sui generis* database protection, or both.⁸² Thus, if a database does not meet the criteria of originality required for copyright protection, it may still be safeguarded by the *sui generis* system of protection if it represents a substantial investment in the collection, verification, and presentation of information. While there are some similarities between copyright and *sui generis* protection of databases, there are also “significant differences between the rights, especially in terms of subsistence, duration and infringement.”⁸³ The exact content of *sui generis* protection for databases will not be analyzed further, as it has already been the subject of extensive theoretical discussion,⁸⁴ but it should be noted that the *sui generis* protection system does not protect a database on the basis of its originality, but rather on the basis of the “qualitatively and/or quantitatively substantial investment in either the obtaining, verification, or presentation of the contents.”⁸⁵ This may lead to a situation where there are two comparable databases created by two different companies, one protected by the *sui generis* regime and the other not, because the first was the result of a qualitatively and/or quantitatively substantial investment, while the second was not.⁸⁶

Considering that the Database Directive provides that “a database enjoys copyright protection if the selection or arrangement of its content, constitutes the author’s own intellectual creation,” it can be inferred by analogy⁸⁷ that the originators of a set of Big Data must in some way, as the ECJ held in *Bezpečnostní*

⁷⁹ *Ibid.*, Art. 1 para. 2.

⁸⁰ For more on the term “substantial investment” see *The British Horseracing Board Ltd and Others v. William Hill Organization Ltd*, Case C-203/02, ECLI:EU:C:2004:695, para. 31, 32; *Fixtures Marketing Ltd v. Oy Veikkaus Ab*, Case C-46/02, ECLI:EU:C:2004:694, para. 41.

⁸¹ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ L 77/20, Art. 7, para. 1.

For more on the characteristics of “qualitatively and/or quantitatively substantial investments” see *Fixtures Marketing Ltd v. Oy Veikkaus Ab*, Case C-46/02, ECLI:EU:C:2004:694, para. 34.

⁸² For more see Kosciak and Myska (2017), pp. 46, 47; Quaedvlieg (2009), p. 483.

⁸³ Bainbridge (2019), p. 211.

⁸⁴ Op. cit., 210-256; Beunen (2007); Hasan (2005); Maier et. al. (2022).

⁸⁵ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ L 77/20, Art. 7, para. 2.

⁸⁶ Derclaye and Husovec (2021), p. 3.

⁸⁷ Although there are some important differences between a database and a set of Big Data, e.g. that a database is a structured collection of data designed for efficient and fast data retrieval, while a set of Big Data is a specific collection of Big Data that can be more complex and requires more advanced techniques and technologies for processing and analysis, I believe that they have enough similarities to allow for analogical reasoning, since both are used to store and manage data.

*softwarová asociace*⁸⁸ and *Infopaq International*,⁸⁹ “express creative ability in an original manner by making free and creative choices,” for the said set of Big Data to be protected by copyright. In the absence of relevant case law on the originality of sets of Big Data, we can again resort to the analogy with databases. In *Football Dataco*,⁹⁰ the ECJ clarified the concept of originality in databases, concluding that a database constitutes the author’s own intellectual creation if “the selection or arrangement of the data which it contains amounts to an original expression of the creative freedom of its author”⁹¹ which is not the case when “the setting up of the database is dictated by technical considerations, rules or constraints which leave no room for creative freedom.”⁹² I believe that if the above conditions are met by a set of Big Data, it fulfils the criteria for copyright protection.

4.2.2 On the New Product and Technical Progress Conditions

As explored above, the classic criteria (*Magill* and *IMS Health*) for applying the doctrine in intellectual property cases require that access to the facility is necessary for the applicant company to offer a new product for which there is actual or at least potential consumer demand. In the case of IPRs whose licensing is requested under the doctrine, it is not difficult to foresee and even prove their necessity for the offering of a particular new product. In *Magill*, for example, it was clear that access to each television station’s television program was necessary to assemble a consolidated television program of all television stations, which did not yet exist and thus constituted a new product. Similarly, in the case of *IMS Health*, access to the 1860 brick structure was necessary to provide services in the market for the sale and distribution of pharmaceutical products (downstream market). In other words, the economic value of each IPR is known in advance to the companies requesting access before access is granted. Thus, they can argue that the new product condition is met. As mentioned earlier, it is different with Big Data, as it has no intrinsic value *per se* – its economic value is derived from the information it contains. However, in some cases the exact nature of this information cannot be known in advance before the set of Big Data in question is subjected to analysis with advanced analytical tools. In this context, it is necessary to distinguish two specific positions, one in which it is possible for companies to know in advance what kind of information (but not also the exact information) a set of Big Data contains, and one in which this is not the case. It is important to keep in mind that Big Data is characterized by constant change in terms of variety and scope. New data is constantly being generated, and the information it contains can be dynamic, requiring real-time

⁸⁸ *Asociace Bezpečnostní softwarová asociace – Svaz softwarové ochrany proti Ministerstvo kultury*, Case C-393/09, ECLI:EU:C:2010:816, para. 50.

⁸⁹ *Infopaq International A/S v. Danske Dagblades Forening*, Case C-5/08, ECLI:EU:C:2009:465, para. 45.

⁹⁰ *Football Dataco Ltd and Others v. Yahoo! UK Ltd and Others*, Case C-604/10, ECLI:EU:C:2012:115.

⁹¹ Kosciak and Myska (2017), p. 51.

⁹² *Football Dataco Ltd and Others v. Yahoo! UK Ltd and Others*, Case C-604/10, ECLI:EU:C:2012:115, para. 38.

analysis to gain commercially relevant information. In some cases, trying to know the information in a set of Big Data before it is analyzed could therefore be equal to trying to predict the future. In addition, extracting useful information from a set of Big Data can be highly contextual, meaning that the degree to which the information is useful depends on the circumstances in which it was generated. Contextual elements such as user behavior, environmental factors, or temporal considerations often emerge only during the analysis process, making preemptive insight difficult. Furthermore, with Big Data, there are often complex relationships between data points that are not apparent without analysis with advanced analytics tools. These complex relationships, such as correlations, patterns, or causalities, can unearth (commercially) important insights. However, in certain situations, the information contained in a set of Big Data can be predicted more or less accurately. Examples include sets of Big Data related to various loyalty programs where customers use loyalty cards or provide their personal information during transactions in supermarkets. It is known that sets of Big Data created in this way contain information about the purchased products, transaction amounts, and customer demographics. Another example are sets of Big Data created by fitness tracking apps that collect data about users' exercise routines, sleep patterns, heart rates, and other health data. Ahead, it is also known that a set of Big Data on financial transactions contains information about, *inter alia*, purchases, deposits, and withdrawals.

It can therefore be concluded that it is possible to merely guess (more or less accurately) the nature of the information contained in a set of Big Data in some situations. Companies claiming access to Big Data by invoking the doctrine are in my view thus not always able to coherently argue that the set of Big Data in question is essential to the offering of a particular product that does not yet exist, since it is not clear whether this is the case or not. I believe that the applicability of the new product condition should therefore depend on whether it is known in advance what kind of information the analyzed set of Big Data contains (but not also the exact information itself). If this is the case, there is nothing to prevent the use of the new product condition. However, if this is not the case, the new product condition should not apply.

It would be easier for companies to argue that a certain set of Big Data is required to achieve technical progress, since the technical progress condition is easier to fulfil than the new product condition. Moreover, rapid and propulsive technical progress is one of the hallmarks of markets driven by Big Data, and in my opinion any new market development would therefore also represent at least some kind of technical progress.

To summarize, I believe that the indiscriminate application of both the new product condition and the technical progress condition in cases of access to Big Data based on the doctrine seems unwarranted. The new product condition should be applied only if the nature of the information contained in a set of Big Data is known in advance (before it is analyzed). If this is not the case, the new product condition

should not be applied, as in such positions companies cannot predict whether access to a particular set of Big Data would enable them to offer a new product.⁹³ With regard to the technical progress condition, on the other hand, it can be assumed that any development in markets driven by Big Data represents at least some kind of technical progress, since these markets are characterized by rapid and propulsive technical development.

5 Findings

An analysis of the ECJ's case law reveals three distinct sets of criteria for applying the doctrine: the *Bronner* criteria, used in cases involving tangible facilities and services; the *IMS Health* criteria, used in cases involving IPRs; and the *Microsoft* criteria, whose scope remains unknown in the absence of subsequent case law. Although the doctrine was developed primarily for assessing whether tangible facilities and services are essential facilities, the ECJ extended its reach to IPRs in the 1988 judgments of *Volvo v. Veng* and *Renault v. Maxicar*. Both rulings upheld the right of the holder of IPRs to exercise them monopolistically, but at the same time indicated that refusal to license may constitute an abuse of a market dominance if it leads to abusive conduct. The criteria for applying the doctrine to IPRs were systematically set out in the *Magill* and *IMS Health* judgments. The most important difference from the *Bronner* criteria is the addition of the new product condition, which further strengthens the position of the company controlling the essential facility. Thus, the doctrine can be applied to IPRs only if they do not promote innovation, but rather impede it. After the *IMS Health* ruling, it was relatively clear under what circumstances the doctrine could be applied in cases involving different types of alleged essential facilities. However, this changed with the ECJ's *Microsoft* judgment, which involved interoperability information protected by IPRs as the alleged essential facility. The ruling abandoned the traditional intellectual property criteria and replaced the new product condition with the technical progress condition. Moreover, it did not require that the refusal to license eliminates all competition in the downstream market, but only effective competition. In the absence of subsequent case law, the scope of the *Microsoft* criteria is unknown. It is therefore unclear whether the *Microsoft* criteria were tailored to the present case, which involved a very specific set of facts, or whether their applicability is broader⁹⁴ or even general. Regardless of which criteria (*IMS Health* or *Microsoft*) are applied in intellectual property cases, they are much more stringent than the criteria that apply in cases involving tangible facilities and services. In my opinion this is unwarranted, as the *Bronner* criteria already offer companies controlling alleged essential facilities a high level of protection through the objective test. Furthermore, it is not just the establishment of innovations protected by IPRs that demands high

⁹³ The exact nature of the information contained in such a set of Big Data is not known before it is analyzed with advanced analytical tools, which can only occur after the requesting company has been granted access.

⁹⁴ For example, to alleged essential facilities in digital markets.

investments: the same is also true for tangible facilities and services, which voids the need for additional protection of IPR holders.

In my opinion, the new product condition is vague and very much open to interpretation, as it is not always clear what a new product is and whether the product in question is actually “new” or just an improvement of an existing product. What the ECJ has made clear in its case law, however, is that the new product does not have to be so new that it opens up a new market that did not exist before. The technical progress condition is, in my view, even more vague than the new product condition because it is not clear how much technical progress is required for the doctrine to apply. In other words, it is not clear whether a small amount of technical development is sufficient or whether the technical progress must be so substantial that the product is already a virtually new product.

Despite the reluctance of the ECJ and the EC to acknowledge that Big Data can be an essential facility, recent legislative developments at the EU level and in Germany confirm that this is indeed the case. The fact that Big Data may be an essential facility naturally raises the question under which of the existing criteria the character of a particular set of Big Data as an essential facility should be assessed, or whether new criteria should be developed. Since this is primarily a competition policy question rather than a competition law question, this paper has not attempted to answer it. What it did, however, was prove that neither the *IMS Health* nor the *Microsoft* criteria are suitable for application in cases where access to a set of Big Data would be demanded on grounds of the doctrine. Big Data as such are not necessarily protected by copyright. This is only the case when some form of individual creative effort, a “personal touch,” is present in the process of accumulating and/or processing the relevant data. In my view, the application of criteria specifically designed to assess whether facilities protected by either copyrights or patents are essential facilities is not justified in cases where a set of Big Data is protected by neither of them. Moreover, both in cases where Big Data is protected by copyright and in cases where it is not, the lack of its intrinsic value limits the applicability of the new product condition. The latter condition should therefore be applied only in situations where the nature of the information contained in a set of Big Data is known in advance (before it is analyzed) using advanced analytical tools, but not where this is not the case. In other words, the new product condition should not be applied where it is not possible to know whether the information contained in a set of Big Data could enable the offering of a new product before this set of Big Data is subjected to analysis with advanced algorithms, which can only be done after access has already been granted.⁹⁵ Looking ahead, since markets driven by Big Data are characterized by their dynamism and extremely rapid technical progress, it can be assumed that any product whose essential input is a set of Big Data represents at least some technical progress over the already existing product, meaning that the technical progress condition becomes obsolete.

⁹⁵ If the nature of information contained in a set of Big Data is not known in advance, the requesting company cannot argue that a set of Big Data is essential for offering a new product.

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