CIRANO
*Allier savoir et décision*

# THE CONCENTRATION OF DIGITAL MARKETS: HOW TO PRESERVE THE CONDITIONS FOR EFFECTIVE AND UNDISTORTED COMPETITION?

FRÉDÉRIC **MARTY**

**2021s-27**
**CAHIER SCIENTIFIQUE**
CS

CIRANO
*Knowledge into action*

Center for Interuniversity Research and Analysis on Organizations

The purpose of the **Working Papers** is to disseminate the results of research conducted by CIRANO research members in order to solicit exchanges and comments. These reports are written in the style of scientific publications. The ideas and opinions expressed in these documents are solely those of the authors.

*Les cahiers de la série scientifique visent à rendre accessibles les résultats des recherches effectuées par des chercheurs membres du CIRANO afin de susciter échanges et commentaires. Ces cahiers sont rédigés dans le style des publications scientifiques et n'engagent que leurs auteurs.*

**CIRANO** is a private non-profit organization incorporated under the Quebec Companies Act. Its infrastructure and research activities are funded through fees paid by member organizations, an infrastructure grant from the government of Quebec, and grants and research mandates obtained by its research teams.

*Le CIRANO est un organisme sans but lucratif constitué en vertu de la Loi des compagnies du Québec. Le financement de son infrastructure et de ses activités de recherche provient des cotisations de ses organisations-membres, d'une subvention d'infrastructure du gouvernement du Québec, de même que des subventions et mandats obtenus par ses équipes de recherche.*



**ISSN 2292-0838 (online version)**

# The concentration of digital markets: How to preserve the conditions for effective and undistorted competition?

*Frédéric Marty*[*]

Abstract

The policy initiatives announced on both sides of the Atlantic to complement competition rules focus on two key dimensions: the contestability of markets on the one hand and fairness in their functioning on the other. The underlying idea is that the market positions of Big Tech would be inexpugnable - insofar as high barriers to entry protect them from self-regulating competition and insofar as they would have regulatory power over their respective ecosystems. Competition for the market would no longer be free, and competition in the market would be distorted. Our purpose in this working paper is to discuss these two dimensions. Are digital markets still contestable, and is the competition in them still competition on the merits? Finally, we discuss the remedies proposed to address these two alleged phenomena.

Keywords: contestability, fairness, loyalty, Big Tech, concentration, exclusionary abuses

JEL codes : K21, L41

Résumé

*La concentration des marchés numériques : Comment préserver les conditions d'une concurrence effective pour le marché et d'une concurrence non faussée dans le marché ?*

Les initiatives politiques annoncées de part et d'autre de l'Atlantique pour compléter les règles de concurrence mettent l'accent sur deux dimensions essentielles : la contestabilité des marchés d'une part et la loyauté dans le fonctionnement dans leur fonctionnement d'autre part. L'idée sous-jacente est la suivante : les positions de marché des grandes entreprises du numérique seraient inexpugnables – dans la mesure où de fortes barrières à l'entrée les protègent d'un caractère auto-régulateur de la concurrence et dans la mesure où elles jouiraient d'un pouvoir de régulation sur leurs écosystèmes respectifs. La concurrence pour le marché ne serait plus libre et la concurrence dans le marché serait faussée. Notre propos dans ce document de travail est de discuter ces deux dimensions. Les marchés numériques sont-ils toujours contestables et la concurrence qui s'y exerce est-elle encore une concurrence par les mérites ? Nous discutons enfin les remèdes proposés pour répondre à ces deux phénomènes allégués.

Mots-clés : contestabilité, loyauté de la concurrence, équité, Big Tech, concentration, abus d'éviction

[*] CNRS – GREDEG -Université Côte d'Azur et CIRANO, Montréal

Codes JEL: K21, L41

## I – Introduction – An assault against the Big Tech[1]

Even before the March 2020 Covid 19 related crisis, the antitrust consensus seemed to erode (Wolfe, 2020). This consensus, which had prevailed for four decades, was built on two pillars.

The first pillar was a methodological one: the only legitimate objective of competition enforcement was economic efficiency, and competition procedures had to be based on a case-by-case approach based on the measurement of the net effects of the practices under consideration on consumer welfare.

The second pillar was the assumption of a net pro-efficiency effect of vertical integration of firms[2]. This hypothesis originated in the Chicago School and has since been challenged by the industrial organization literature. Nevertheless, it still has a strong influence on competition policies in terms of merger control, particularly in the United States[3], or controlling the vertical strategies of dominant operators. This pro-efficiency presumption has mainly benefited the large digital players. The latter have been able to take advantage of a control framework exposed to the risk of under-enforcement, in other words, false negatives[4].

This doubt was not unanimously shared in the first quarter of 2020. Big Tech seemed to owe their market positions to their own merits and the European Commission, with its three consecutive Google decisions, seemed isolated on the international scene... if not accused of rampant protectionism. The companies that use the services provided by the Big Tech to access the market were suspected of using the resources offered by competition law to artificially maintain their position on the market (see Baumol and Ordover (1985) for instance). At the same time, the perceived efficiency of Big Tech seemed indisputable: low prices, if not zero for platforms whose activities are mainly focused on the attention market (Facebook and, to a lesser

---

*This text is an English version of a draft prepared for the *Droit et Commerce* annual conference organised in Deauville in June 2021. An article stemming from this conference and benefitting from its feedbacks will be published in September 2021 in *La Gazette du Palais*. The author also thanks Thierry Warin for his valuable insights on this text.

[1] We adopt this term for convenience to avoid the acronym GAFAM and also to translate the distinction made by François Lévêque (2021) in his latest book between traditional big companies and the digital titans.

[2] According to Wong-Ervin (2019), "The generally accepted belief underlying modern antitrust analysis of vertical mergers ... has been that they are generally procompetitive or neutral. This belief is supported by a significant body of empirical evidence". Wright and al. (2020) came to a similar conclusion: "Thus, the modern antitrust approach to vertical mergers, as reflected in the antitrust literature, should reflect the empirical reality that vertical relationships are generally procompetitive or neutral".

[3] On the need to measure the effects of vertical mergers on a case-by-case basis see Beck and Scott-Morton (2020).

[4] The views of several leading economists on the FTC's proposed overhaul of the guidelines in early 2020 reflected these possible risks of under-enforcement of competition rules: "We are concerned that these features of the draft Guidelines will lead to under-enforcement and false negatives (including under-deterrence)" (Baker et al., 2020).

extent Google) and a very sustained pace of innovation. The challenge to Big Tech then seemed to be a criticism of concentration per se and not of its effects in terms of damage to consumers or innovation. As Thurman Arnold (1940), head of the Antitrust Division of the US DoJ, eighty years ago, put it: competition policy is not about deconcentrating markets as such, but about compelling firms to pass on the efficiency gains they achieve to consumers.

Before the crisis, the main concern was the harm inflicted on trading partners, particularly in a situation of economic dependence, but was there not a risk of diverting competition from what was then considered as its sole legitimate objective - the defense of consumer welfare? The risk of accepting non-explicit and non-transparent trade-offs between the interests of consumers and those of competitors and trading partners of dominant operators was commonly put into relief.

However, there was a growing academic challenge, especially in the United States. Born in early 2010, it had gained momentum with the papers of Teachout and Khan (2014), Khan (2017), Rahman (2018), and eventually Tim Wu's book *The Curse of Bigness* (Wu, 2018). However, it seemed to have gained legitimacy only in one part of the US political spectrum and was subject to extremely strong and sharp criticism from the 'antitrust community'. The focus on market structures was denounced as a throwback to an ante-Chicago School era and was tantamount to an abandonment of potential efficiency gains (Petit, 2020). Taken differently, assigning broader objectives to antitrust than efficiency was tantamount to accepting possibly discretionary political trade-offs between different stakeholders. Again, the consumer was seen as a potential victim, likely to be sacrificed on the altar of protecting competitors.

The covid-19 crisis seemed to put an end to this criticism. The proposal for a moratorium on Big Tech acquisitions in the US House of Representatives seemed somewhat anachronistic but met with opposition. The crisis should not be an excuse to keep zombie companies on the market (Padilla and Petit, 2020; Padilla et al., 2021), and at the same time, Big Tech was showing its efficiency, if not its indispensability, for the preservation of our economic and social life (Marty, 2020a).

Despite this apparent rehabilitation by the crisis, Big Tech came under unexpectedly severe assault on both sides of the Atlantic.

- *EU situation*

In the EU, an inception impact assessment for a new competitive tool was made public in June 2020 (Cartapanis and Marty, 2020). It prefigured the publication of a proposal for a Digital

Markets Act by the Commission on 15 December 2020 (EU Commission, 2020a). This is not the place to discuss the nature and issues of the DMA[5]. The papers of H. Schweitzer (2021), Cabral et al. (2021), and the CERRE report (CERRE, 2021) can be read to a great advantage. We can limit ourselves to highlighting some of the most interesting specificities of the DMA concerning the antitrust consensus described above.

Firstly, the DMA is not a substitute for competition rules, even though it borrows a considerable part from them, but a tool presented as complementary. It does not have an efficiency objective but contestability and fairness objective that we could define, following Malaurie-Vignal (2021a), as an objective of non-discrimination and loyalty[6]. In other words, it is a question of guaranteeing freedom of access to the market and fair competition between the various companies that need to access the different digital ecosystems to enter the market. These two objectives are the basis of the *dos* and *donts* detailed in Articles 5 and 6 of the proposed DMA, which would weigh on gatekeepers if adopted as it stands.

The DMA addresses the issue of market dominance by taking into account situations in which the very contestability of the market could be called into question by the positions acquired by access controllers, e.g., the gatekeepers. This is the meaning of Recital 3, which we reproduce here in its entirety:

> *A small number of large providers of core platform services have emerged with considerable economic power. Typically, they feature an ability to connect many business users with many end-users through their services which, in turn, allows them to leverage their advantages, such as their access to large amounts of data, from one area of their activity to new ones. Some of these providers exercise control over whole platform ecosystems in the digital economy and are structurally extremely difficult to challenge or contest by existing or new market operators, irrespective of how innovative and efficient these may be. Contestability is particularly reduced due to the existence of very high barriers to entry or exit, including high investment costs, which cannot, or not easily, be recuperated in case of exit, and absence of (or reduced access to) some key inputs in the digital economy, such as data. As a result, the likelihood increases that the underlying markets do not function well – or will soon fail to function well.*

[5] For a very comprehensive analysis see Petit (2021).
[6] For an economic theory-based assessment of the notions of contestability and virus, see Crawford and al. (2021).

Secondly, the DMA would deviate from the approach advocated by a "technical antitrust[7]." It leads to a narrow focus on the definition of the relevant market, establishing a theory of harm, and a lesser focus on an efficiency defense.

Thirdly, it leaves some leeway for the Commission to review the obligations on access controllers (Article 10) and choose the appropriate remedies in case of the repeated infringement[8].

In some respects, the DMA falls between a competition tool (guaranteeing free, undistorted competition and respecting the objective of economic sovereignty of market players) and a sector-specific regulation instrument, which can go as far as asymmetric regulation of competition.

- *US situation*

A similar phenomenon was even more surprisingly observed from autumn 2020 in the US. A bipartisan commission had been formed before the pandemic in the House of Representatives' Committee on Antitrust. Lina Khan was a member of the committee's scientific council. The report issued in October 2020 (US House of Representatives, Judiciary Committee, 2020) was most unexpected: it was highly critical of Big Tech's competitive practices, including competitive foreclosure, self-preferencing and consolidating acquisitions. As in the case of the European Commission's inception impact assessment of June 2020, the perception that competition is being blocked through acquired positions that cannot be challenged by conventional antitrust laws enforcement was prevalent (Cartapanis and Marty, 2021).

[7] See Hovenkamp (2018) for a definition of this notion.

[8] See Recital 64:

> *The Commission should investigate and assess whether additional behavioural, or, where appropriate, structural remedies are justified, in order to ensure that the gatekeeper cannot frustrate the objectives of this Regulation by systematic non-compliance with one or several of the obligations laid down in this Regulation, which has further strengthened its gatekeeper position. This would be the case if the gatekeeper's size in the internal market has further increased, economic dependency of business users and end users on the gatekeeper's core platform services has further strengthened as their number has further increased and the gatekeeper benefits from increased entrenchment of its position. The Commission should therefore in such cases have the power to impose any remedy, whether behavioural or structural, having due regard to the principle of proportionality. Structural remedies, such as legal, functional or structural separation, including the divestiture of a business, or parts of it, should only be imposed either where there is no equally effective behavioural remedy or where any equally effective behavioural remedy would be more burdensome for the undertaking concerned than the structural remedy. Changes to the structure of an undertaking as it existed before the systematic non-compliance was established would only be proportionate where there is a substantial risk that this systematic non-compliance results from the very structure of the undertaking c*oncerned.

The notion of structural market failure also surfaced. Radical competitive remedies could be envisaged when confronted with the market position of the large ecosystems and their apparent lack of contestability. As in the European case, the report was in clear opposition to the "antitrust consensus" and the American decision-making practice of these four last decades in the field of competition. Not only were some aspects that seemed to be self-evident, such as the effects-based approach, the definition of the relevant market, etc., that are called into question but concepts close to European law were also put forward, such as the abuse of a dominant position or a dramatic change in the definition of predation departing from the current US case law.

The October 2020 report was not an isolated initiative; numerous lawsuits were brought against Big Tech based on Section 2 of the Sherman Act, notably by the attorneys general of many federated states. The aim here is not to present the various actions taken but to show that they are linked to many legislative initiatives designed to strengthen the arsenal available to the public authorities in terms of competition policy.

Two sets of examples can be emphasized.

First, a proposal to modernize New York State's antitrust law should be presented. On 7 June 2021, the State Senate passed a new antitrust law called the "21st Century Antitrust Act". Its specificity lies in the fact that section 1 creates an abuse of dominance. It allows for the prosecution of a dominant company[9] that refuses to contract with a third party without an objective reason or implements tying practices leading to leveraging its position. The second section deals with obligations to notify proposed mergers and acquisitions by undertakings exceeding some quantitative thresholds[10].

Then, there are several bipartisan bills that were introduced in the House of Representatives on 11 June 2021. These are all avenues for specific supervision of Big Tech. Among these five proposals, we could mention the "American Innovation and Choice Online Act," which aims to “prohibit[…] discriminatory conduct by dominant platforms, including a ban on self-preferencing and picking winners and losers online”, the "Platform Competition and Opportunity Act" – whose purpose is “prohibiting acquisitions of competitive threats by

[9] Dominance may be defined in terms of market share (40% for a seller, 30% for a buyer) or in terms of bargaining power: for example, a complainant may establish dominance by showing that the firm in question is not constrained by "meaningful competition". This lack of constraint by meaningful competition may be due to the existence of a unilateral power to set prices or contract terms.

[10] https://www.nysenate.gov/legislation/bills/2021/s933

dominant platforms, as well acquisitions that expand or entrench the market power of online platforms," and eventually, the "Ending Platform Monopolies Act" that goal is "eliminating the ability of dominant platforms to leverage their control over across multiple business lines to self-preference and disadvantage competitors in ways that undermine free and fair competition."

In the same way, we could highlight the Biden Administration July 2021 executive order, which aims at *Promoting Competition in the American Economy*[11].

To these initiatives in the field of competition, it would be appropriate to add reflections in sectoral regulation. In a concurring opinion to a Supreme Court ruling of April 2021 on the suspension of former President Trump's Twitter account[12], Justice Thomas proposed imposing Common Carrier obligations on the major digital platforms active in the information market. This standard is derived from English common law and a 1676 judgment prohibiting a private company managing a port infrastructure from refusing access to its competitors or treating them less favorably than its activities.

This logic was recently extended through a procedure initiated by the Minister of Justice of the State of Ohio against Google[13]. In this case, the proposal is to impose the Common Carrier principle on the operator, but also to submit it to the Ohio public utilities law. It should be noted that the practice of sectoral regulation does not limit it to situations of market failure (in other words, to network industries) but can cover any activity affecting the public interest. In this sense, Rahman (2018, 1625) proposes applying the public utilities rules to large platforms. According to him, these rules could be applied to "social infrastructure[s] where private actors accumulate outsized control over those goods or services that form the vital foundation or backbone of our political economy."

Using a distinction made by the economist Walton Hamilton (1932), Rahman (2018, 1641) highlights some characteristics of digital ecosystems. These are activities characterized by high barriers to entry, large potential sunk costs, increasing returns and advantages based on diversification. It is, therefore, an infrastructure whose value depends on the downstream activity it enables. Symmetrically, denial of access or discriminatory conditions of access has a

---

11 https://www.whitehouse.gov/briefing-room/statements-releases/2021/07/09/fact-sheet-executive-order-on-promoting-competition-in-the-american-economy/

12 U.S. Supreme Court, Joseph R. Biden Jr, President of the United States et al. v Knight First Amendment Institute at Columbia University et al., on petition for writs of certiorari to the US Court of Appeals of the Second Circuit, n°20-197, decided April 5, 2021, 593 U.S. __

13 Common pleas court of Delaware County, Ohio civil division, case n°21 CV H 06 0274

significant effect on complementors and users. Finally, it is a socially necessary infrastructure and unilateral control of it places complementors in a vulnerable position.

At the same time, the firms in question can be gatekeepers for the circulation of goods and services and the diffusion of ideas. The large platforms active in the attention market, such as Google or Facebook, are essential infrastructures for citizens' access to information. They can deny access to certain information, but they are also able to shape agents' beliefs and frames of thought by creating personalised information filtering bubbles. As such, they are not passive intermediaries in the dissemination of information.

Thus, the link between Big Tech and regulatory policy is increasingly being discussed in both EU (Botta, 2021) and the United States (Woodcock, 2021). It, therefore, appears that two types of proposals are emerging to deal with the considerable market dominance of Big Tech. The regulatory proposals we have just mentioned, which are based on consideration of the systemic nature of these platforms on the one hand, and proposals for radical competitive remedies on the other, which may involve prohibitions on diversification (Khan, 2019), reverting to the application of a *principe de spécialité*, or even obligations to share algorithms with competitors (Gal and Petit, 2021).

We intend to consider the contestability of Big Tech's market positions and assess the proposed remedies' appropriateness from this perspective. In this regard, our paper is structured as follows. A second section focuses on the discussion of the contestability of the positions held by these companies. A third section examines the possibility of challenging these dominant positions through the development of disruptive technologies, namely artificial intelligence and possibly quantum computing. Our fourth section looks at the competitive or regulatory tools that could facilitate the unlocking of acquired positions.

## II – On the contestability of dominant positions in the Tech sector

‘Structure versus behavior' or 'Harvard School versus Chicago School': these terms recall ancient, slightly outdated antitrust debates that structured decades of textbooks for economics students. The end of the story was written with the seemingly definitive obliteration of the structuralist approach. Not only were American cases such as Brown Shoe presented as

spectacular repulsors[14], but the accusation of protecting competitors and not competition could be an easy instrument of disqualification at a time when the effects approach was imposing itself (Fox, 2003).

As we noted in our first section, the surprise was then to see the re-emergence of a neo-structuralist movement (the antitrust hipster) insisting that dominance could be a problem in itself. This new posture towards the sheer size of firms, seen as a hindrance in itself to the competition process, naturally led to the re-emergence of a debate on the dismantling of dominant operators. Khan (2009) on the separation of platforms and commerce is a typical quasi-ideal manifestation of this new attitude towards bigness.

However, was the diagnosis of increasing concentration generally accepted before the crisis broke?

The increasing concentration of economies, particularly the US economy, has been the subject of much controversy not only in the scientific field but also in the political field. Chapter 6 of the Economic Report of the President published in February 2020 by the Trump Administration, entitled "Evaluating the Risk of Declining Competition," was itself a rebuttal to a report by the Obama Administration's Council of Economic Advisers in 2016, "Benefits of Competition and Indicators of Market Power," which expressed concern about the growing concentration of the US economy[15].

In the academic field, Thomas Philippon's book (Philippon, 2019) and the University of Chicago's Stigler Center Report on digital platforms (Stigler Center, 2019) were two defining

[14] See Supreme Court judgment in Brown Shoe Co, Inc. v. United States, 370 U.S. 294 (1962). The debate on the market shares that should be taken into account in the context of merger control was a decisive step in the economisation of competition law and the rise of the Chicago influence within the DoJ. In this respect, the 1982 Horizontal Merger Guidelines represent a clear break with the 1968 Guidelines. Under the 1968 guidelines, the competition authorities commonly opted for an in-depth review when the market share of the acquiring firm exceeded 15% and that of the acquired firm 1% (see Shapiro, 2010).

[15] The position taken by the economic advisors of the Trump administration in February 2021 sharply contrasts with the one of the Biden administration. See, for instance, the executive order on promoting competition in the American economy:

> "*Yet over the last several decades, as industries have consolidated, competition has weakened in too many markets, denying Americans the benefits of an open economy and widening racial, income, and wealth inequality [….] We must act now to reverse these dangerous trends, which constrain the growth and dynamism of our economy, impair the creation of high-quality jobs, and threaten America's economic standing in the world. This order affirms that it is the policy of my Administration to enforce the antitrust laws to combat the excessive concentration of industry, the abuses of market power, and the harmful effects of monopoly and monopsony — especially as these issues arise in labor markets, agricultural markets, Internet platform industries, healthcare markets (including insurance, hospital, and prescription drug markets), repair markets, and United States markets directly affected by foreign cartel activity*".

moments in the construction of the thesis of a growing and potentially irreversible concentration of the US economy.

Although often criticized, the hipster movement originated in a very particular economic context. This context is worthy of consideration, even if one should remain cautious about its prescriptions. Indeed, many economic studies highlight a solid concentration of economic power that has significant consequences regarding the distribution of well-being and productivity gains and growth. The question is not only one of distribution but also one of dynamic efficiency, as can be seen, for instance, from the research carried out on the capacity of companies that are placed in a situation of economic dependence, to generate the necessary resources to invest in innovations (Bougette et al., 2019). Disposing of such capacities could favor disruptive innovations that reduce their dependence vis-à-vis dominant players and reshuffle the cards in the competitive game.

Firms in a situation of dependence on a gatekeeper may not be able to achieve the innovations they could plan in another market situation. Firstly, being confronted with an upstream or downstream gatekeeper can drastically reduce the capacity to invest. Such a market player can unilaterally dictate its prices to its commercial partners; impose mark-downs on its suppliers and mark-ups on its customers. Secondly, there is a risk that the innovations developed will be biased towards the interests of the dominant firm. Thanks to its architectural power, the latter can encourage its trading partners to develop innovations complementary to its own and specific to its ecosystem. This has the effect of strengthening the lock-in of its partners and the attractiveness of its ecosystem vis-à-vis its competitors insofar as its proposal to end-users and trading partners is specific.

On the interests of integration into an ecosystem for a complementor's ability to innovate, it should be noted that the complementor sees its barriers to access to investment and innovation reduced through the financial support measures paid by the pivotal firm of the ecosystem (indirect or direct, as shown in the European Commission's Android decision - Case AT.40099 - Google Android, 18 July 2018), through the specific resources from which the latter gives access (in terms of data and algorithms, particularly in terms of interface) and, above all, perhaps through a guarantee of access to the market and specific coordination of investments. Indeed, an investment in an ecosystem may differ in several respects from an investment in a market. The investor is not in a situation of radical uncertainty regarding the compatibility of his investment with that of other actors. He can even know whether he will be the only one to invest in a given development. In other words, the pivotal firm coordinates investments and

allows complementors to form stable and reasonable long-term expectations. This system increases the potential returns from investments (in that it coordinates them with complementary investments) and reduces the risks of ruinous competition. However, the keystone (e.g., the pivotal platform of the digital ecosystem) is not a disinterested third party in such a "market" architecture. It can steer the technological dynamics of its ecosystem to its advantage to consolidate its dominance by increasing the captivity of users and complementors (Marty and Pillot, 2021).

A gatekeeper may have the capacity to steer the innovations of the members of its ecosystem to make the latter increasingly insulated from the competition (Marty, 2020b). Encouraging the development of complementary innovations increases the lock-in effect of consumers (because leaving the ecosystem means accepting higher switching costs as they have acquired goods and services that they could no longer benefit from in another). Such a lock-in effect also concerns complementors (because leaving the ecosystem transforms past investments into stranded costs insofar as they are specific to the ecosystem). Ecosystems can, therefore, increasingly take the form of hermetic silos (characterized by a weak inter-ecosystem competition). The various poles' relations are marked by interdependence but by increasing asymmetry (control of intra-ecosystem competition). As the DMA proposal demonstrates, the contestability of dominant positions is increasingly doubted, and loyalty in relations within ecosystems is less and less guaranteed. This phenomenon can hinder innovation by reducing competition both for the market and competition within the market (Marty and Warin, 2020).

In competitive terms, it is feared that the sheer size of the dominant operators in digital markets may lead to irreversible exhaustion of the competitive process. The assumption that competition is self-regulating through the contestability of markets may no longer be valid... primarily if dominant companies can engage in diversification strategies through both internal and external growth.

The competitive advantages of the dominant operators in the Tech sector in terms of technology, money, and information, as well as the network effects, economies of scale, and scope from which they benefit, make it impossible for an equally efficient competitor to emerge and potentially be able to supplant them in the future, or at least exerting a competitive pressure that deters them from abusing their market power. In other words, their market position would no longer be contestable. In such a scenario, barriers to entry would be insurmountable.

However, according to the Chicago School, there are no barriers to entry except regulatory ones. The market position of the dominant Internet operators is not dependent on regulatory barriers to entry. However, their financial capabilities and technological advantage may appear as complex assets for competitors to replicate. Moreover, their overwhelming dominance (on the market that constitutes their initial development base) and the multiplicity of markets on which they are present, because of their diversification strategy, offer these dominant players control over a resource that is decisive for the performance of algorithms, in this case massive, diversified and constantly renewed data flows. Similarly, the investments of these operators in computing capacity and algorithmic service offerings (cloud computing) may give them an advantage over their competitors in mastering key technologies[16]. Finally, their sheer scale could be analyzed as a barrier to entry. Can competitors who do not benefit from the same economies of scale and scope, especially from the same network externalities, compete based on merit?

Presented as it is here, Big Techs hardly seems to be some giants with feet of clay. Dominant positions appear to be highly unchallengeable. However, an active literature has been developed to show that technological turbulence in the digital sectors is sufficiently strong to challenge the dominant positions of the day, however firmly held they may appear. Business history and particularly the cases of Xerox, IBM, and even Microsoft are often highlighted to demonstrate that the dominant position of Google or Amazon will only last a short time (Manne and Stap, 2019). Indeed, numerous works have been published to highlight the precariousness of dominant positions. In addition to the works cited above, which rely on the history of economic facts to attest to competitive turbulence, other works focus on the effective un-breakability of the alleged barriers to entry (Bourne, 2019).

[16] The potential gains attached to the informational advantage of dominant firms are not limited to their ability to detect competitive threats or extract information from their complementors or users of their cloud services, as we will see below. These gains may also result from greater efficiency in extracting customer information and implementing algorithmic pricing differentiation strategies. Dubus (2021) constructs a model of price discrimination based on observed consumer behaviour and considering the differential costs of collecting information. It shows that a firm that collects information in an undifferentiated way regardless of the segment to which the different consumers belong will make less profit than a firm that is able to identify the most profitable consumers. The ability to focus information collection on a specific consumer segment has the effect of encouraging investment in enhanced consumer identification. Thus, differentiated consumer identification capabilities translate into asymmetrical information collecting costs that have the effect of reinforcing situations of dominance. As Dubus (2021, p.35) notes: "[…] Major tech companies such as Amazon have access to much better technological capacities than their competitors, and can use them to collect and treat data at significantly lower cost, and in the end, dominate their competitors".

There are two barriers to entry, in particular, that merit special consideration. The first relates to data and algorithms, and the second to network effects[17].

The possession of massive, frequently updated, and diversified data flows is often presented as one of the keys to the competitive advantage of dominant companies (Rubinfeld and Gal, 2017). Conversely, a literature has developed to show that there are firms that have been able to enter markets efficiently without having an initial stock of data and with algorithms that at least at their inception did not need to rely on it. This was the case, for example, with firms such as Airbnb, Uber, and Tinder (Lambrecht and Tucker, 2017). In the first of these cases, Airbnb, the entry was successful, while an already established competitor, Expedia, clearly benefited from a data advantage. More recently, Zoom was able to take a considerable place on the videoconferencing market in a few months, during the first phase of the pandemic in the spring of 2020, disrupting other powerful operators that enjoyed a significant users base, such as Cisco (with Webex) and Microsoft (with Teams).

Do network effects also constitute a barrier to entry and exit? The point can be discussed from two angles. Firstly, they can be reversed (MySpace). Secondly, new entrants can thwart them by opting for a differentiated strategy based on exclusivities negotiated with content publishers, as shown in the field of video game consoles by the entry of Microsoft, with its Xbox to the detriment of Sony and its PlayStation 2 (Lee, 2013).

The case of Sony and Microsoft also illustrates an additional competitive force: multi-homing[18]. As long as customers are active on several platforms, none of them has exclusive control over the data, and each of them can benefit from network, scale, or scope effects allowing them to compete in the event of market convergence.

Whatever their current position, Dominant firms do not enjoy a quiet life but rather have sleepless nights (Evans, 2017). Not only are they in potential competition with each other[19], but they are not immune to disruption, which may come from a transformation of uses, the

[17] To these barriers we could add the financial resources available to Big Tech. The financing capacities they enjoy (and the patience of the investors who support them) allow them to invest in upstream research and development activities without excessive short-term constraints and to engage in ambitious acquisition policies that allow them to value their targets at financial levels that other investors could not accept (see for instance Toledano, 2020).
[18] On the competitive impact of multi-homing see the Akman (2021) assessment.
[19] Not only are firms under the threat of disruption by other dominant tech firms as their markets converge, but they are also competing on their future markets (the molygopoly hypothesis developed by Petit, 2020), but platforms that are dominant on a given market (social networks, micro-blogging sites, photo-sharing sites, etc.) are all competing on the market for attention, since they derive their resources essentially from the advertising market and/or from the valuation of data.

appearance of new business models, or disruptive innovations that could reshuffle the cards of the competitive game.

However, this perception could be challenged on several grounds. We will see in our next section that the emergence of disruptive innovations can dramatically change the competitive landscape. However, it is worth adding other advantages that can contribute to the resilience of Big Tech. These relate to the user base (which may also be potentially captive) and financial resources.

Let us start with an example of a new and successful entry: Zoom into the video conferencing market. We noted above that the entry was made against a background of disruption to the competition and all our economies when the first lock-in occurred in March 2020. Until now, the firm had only a small subscriber base (mainly US SMEs). It was able to take a significant market share in a few weeks through the quality of its service (in terms of ergonomics, performance, and ease of use) and through an ambitious commercial policy (free for academics and teachers in particular).

However, this success story must be put in perspective with two parameters.

The first one was a procedure initiated by the FTC in the United States, resulting in a settlement in November 2020 (FTC, 2020). The level of security (i.e., encryption) announced by the firm was not consistent with the observations made by the FTC. In a dissenting opinion, Rohit Chopra considered that preventing deceptive practices was not a sufficient remedy. In his words, deception distorts competition. The advantage gained over competitors was based on a promise of a better user experience for a comparable level of security.

The second one was the response of Big Tech. The case of Google may be interesting to consider. The development of Meet was not fast enough in spring 2020. Its late deployment could potentially be compensated by playing on its integration with Gmail (through the latter's evolution into Google Workspace). However, playing on its user base as a catch-up strategy is no guarantee of success, as Google itself once showed with Google Plus, which was to compete with Facebook in the social networking market.

A second example of the limitation of such disruption based scenarios can be found in the streaming market: pure players have quickly been able to acquire very strong positions in this market, whether in the online music market (with Spotify in particular) or the video on demand market (with Netflix). These operators are increasingly being challenged by Big Tech, which

are developing competing services. To take the example of Amazon, it has been able to link its specific offers to its Amazon Prime offer and to acquire exclusive content that is particularly distinctive for users, such as sports rights (in the case of France alone, let us think of the French tennis open or the French football league). Once again, financial capacity and playing to the user base can limit the risks of permanent contestability of dominant positions.

However, the threat of disruption is likely to be much more significant with the development of technological disruptions, such as AI and quantum computing. Such innovations should - to use a somewhat overused Schumpeterian expression - give rise to the creative destruction that could break down the structural advantages enjoyed by the dominant operators and lower the barriers to entry. Indeed, it should not be forgotten that Microsoft's position of strength was eroded much less during the first decade of this century by the competitive disputes that the company had to face than by the development of the Internet and especially the development of the mobile one.

## III –Artificial intelligence and quantum computing: tools for disruption or consolidation of dominant positions?

Two technologies currently being developed or implemented are perfect candidates to play this role of disruptive innovation, especially as they are two general-purpose technologies (hereafter GPTs): quantum computing and artificial intelligence (hereafter QC and AI). These generic technologies are of particular importance (Tratjenberg, 2019; Mateu and Pluchart, 2019). They are radical innovations that characterise successive industrial revolutions and have all the more impact as they affect all sectors of activity. We are mainly considering here the case of AI, which has reached a level of progress that is currently much higher than QC. However, it should be considered that both are related, especially for the markets we are concerned with. Indeed, QC can offer significantly higher computing speed and lower resource costs for training AI algorithms through rapid optimisation of problem solving and significantly higher parallel computing capabilities during the learning process (Sahin and Barker, 2021).

This section discusses the possibility of such a disruption. It is a question of assessing to what extent these two technological ruptures do not risk - paradoxically - entrenching and consolidating the current dominant positions.

Firstly, these innovations have little chance of being out of the control of the current dominant operators. Their available financial resources and their internal technical capacities enable them

to be their leading developers, whether by external growth (acquisition of start-ups) or by internal growth (research and development, learning by doing, etc.). In addition, they are positioning themselves as effective cloud service providers for many industrial ecosystems. The services provided by Google, Amazon and Microsoft in terms of online storage, provision of computing capacity or algorithmic resources have a crowding-out effect on their users' own investments and developments. This is because their investment capacity and the network, scale and scope effects they can achieve make them particularly attractive to other firms, notwithstanding the risks of technological dependence that this may entail (Marty, 2020c).

Such an issue was addressed by Paul Nemitz, Senior Advisor at the European Commission's DG Justice and Consumers, in his foreword to *Delphi* volume 2019-4. The development of AI and QC is taking place at a specific moment in our Industrial Revolution: the concentration of economic power in the hands of large tech firms and growing fears about the ability of public regulation to address this challenge. According to him, "AI will be added to existing technology and business models and increase their grip even further, if we do not take the appropriate measures of regulation" (Nemitz, 2019). Paul Nemitz's examples are both obvious and difficult to grasp, as the degrees of dominance are so high: Microsoft's operating system and software equip the vast majority of PCs, 90% of cloud information is controlled by American operators (30% by Amazon alone) and 90% of online searches are done using Google Search.

Market dominance is based on algorithmic dominance, which in turn is based on the scale of the investments made in computational capacities and in the control of scarce and therefore strategic human resources.

Secondly, AI is all the more effective if it can be backed up by massive, constantly renewed, diversified and good quality data flows: the four Vs - volume, velocity, variety and veracity. In this respect, the major digital ecosystems have a decisive advantage over their competitors. The case of Amazon even shows that they can have an advantage over their trading partners (i.e. their complementors) within the same ecosystem as soon as there is asymmetrical access to data[20]. As a result, a competitor without the same data flows could be irremediably less efficient than the dominant operator.

The competitive advantage of data is not exclusively related to the amount of data collected. Firstly, the data itself can be acquired from third parties, as data brokers. Second, the data may

[20] EU Commission, DG Competition Press Release IP/19/4291, 17 July 2019.

be provided by users to multiple platforms. Finally, data collection may be characterised by diminishing returns and the data stock itself may be affected by obsolescence.

Thirdly, these two GPTs may allow dominant firms to escape even more from the radical uncertainty of competition. They can detect competitive opportunities and threats much earlier than before. They can pre-empt technological developments by detecting very early on the trajectories taken by other innovators or by using their informational advantage vis-à-vis their own complementors to supplant them, whether by takeover (see the theme of killer acquisitions), by cloning offers or by anticompetitive eviction (the theme of kill zones).

In other words, the availability of tools for detecting competitive threats and future opportunities at a very early stage (now casting, sentiment analysis) may place the incumbent dominant operators in a position of strength either to self-disrupt (and perpetuate their position) or to block potential competitors. A MS-style scenario, in which the dominant operator insufficiently anticipates changes in usage and technology and sees its market power eroded, is less likely than it was twenty years ago.

This ability to detect competitive opportunities and threats at a very early stage can be explained by several key features.

Firstly, AI allows statistical processing of both structured and unstructured data (Warin and de Marcellis-Warin, 2014). The former are coded and classified: they are therefore suitable for statistical analysis. The latter are not labelled. It can be text files, photos or videos. AI can access and process this data statistically. It can also process metadata. This corresponds to structured data that accompanies unstructured data. For example, for a tweet, this includes the date, the sender of the followers, the place where the retweets were sent, etc. The ability to process all of this data makes it possible to have information that is both more massive, more refined and less biased insofar as it is not based on ex-ante classifications. It is becoming possible to apply increasingly efficient statistical methods to accompany data processing: linear and non-linear econometric models (Choi and Varian, 2012), regression trees and factor analysis.

Leading tech companies can use this data and processing in the same way as it is used in the financial sector. Structured data, unstructured data and metadata are used by AI algorithms in the two phases of their operation: the exploration phase in which they understand the market and the exploitation phase in which they make decisions to maximise their profits. AI makes it possible to exploit data other than financial ones to grasp the interpretation of other parties

(Warin and de Marcellis-Warin, 2014). In economic terms, it helps to limit the radical uncertainty about the future behaviour of other market players that is inherent in competition.

In the financial field, many studies have focused on the links between stock market movements and exchanges on social networks, particularly Twitter (Bollen et al., 2011). The sentiments that emerge from exchanges can be advanced predictors of price movements. Using a semantic analysis system that captures the emotional nature of the exchanges (e.g. anxiety), it is possible to predict with a certainty margin of 86% the movements of the Dow Jones Industrial Average over four days[21] (Qian and Rasheed, 2007)

AI makes it possible to exploit in the field of competitive strategies the advances that have already been made in the financial sector with the development of behavioural finance. It is no longer a question of observing price data alone to base one's decision, but of inferring these data from the "feelings" of other market players even before they are translated into decisions. The general mood can therefore be a leading indicator of future trends. For instance, Choi and Varian (2012) were able to show that it was possible to predict the now casting based on queries made on the Google search engine.

Such predictive capabilities based on Google Trends have long been used to measure the real-time spread of flu epidemics (Polgreen et al., 2008). These analyses also make it possible to gauge the feelings of customers with regard to a given product marketed by the firm or its competitors and to identify emerging trends with regard to products or technologies, thus making it possible to take action at a very early stage, even before a competitive threat materialises... or even before the competitors' products arrive on the market.

These techniques can be used to consolidate a dominant position. In the context of online music listening services (streaming), the ability to build customer loyalty comes not only from the extent of the catalogue of titles offered (which is often linked to the number of users of the service) but also from the ability to exploit user feedback in real time (through their listening records) so as to assess their satisfaction and also to refine their segmentation with the finest granularity in order to identify their preferences and to predict the preferences they have not yet expressed. These predictions lead to recommendations that can increase the quality of the

[21] Such a degree of predictability is quite exceptional in relation to the assumption that financial markets are efficient. Indeed, if we accept the latter, markets follow a random walk. Prices can only be influenced by unpredictable future events. It is therefore impossible to have a forecast rate higher than 50%.

service provided and that could not be replicated by a competitor who does not have access to this data.

The same applies to online commerce: the increasingly accurate prediction of consumer needs (based on their segmentation, their previous purchase history, etc.) will make it possible to move from a shopping-then-shipping model to a shipping-then-shopping one (Davenport et al., 2020). This may result in a customer pre-emption strategy: the share of consumption 'open to competition' may be further limited. To the extent that the need could be satisfied before the customer even considers competing, the foreclosure effect would be even stronger.

## IV – Which competitive regulation tools to unlock potentially strengthening dominant positions?

This section looks at the tools that can be used to counteract or limit this risk. The difficulty lies in the fact that the advantage for dominant operators is essentially linked to the merits. Only killer acquisition and anti-competitive foreclosure strategies are susceptible to being sanctioned.

For example, the former could be sanctioned if they are aimed at suppressing innovation and have a negative net effect on consumer welfare. The latter could also be sanctioned if a competitor that is as efficient as the incumbent is excluded from the market by means other than competition on the merits. This may be achieved through tying or bundling strategies (extension of dominance through anti-competitive leverage or non-replicable offers by a non-dominant operator) or through foreclosure strategies based on reducing interoperability (market access), degrading the quality of services provided by the competitor or increasing its costs[22].

To take just one example, self-preferencing strategies, which are prohibited per se under the DMA proposal, are fully representative of such competitive risks. They may allow a pivotal firm to distort competition to their advantage on a downstream market in order to foreclose it by distorting competition, which may take the form of price or technical discrimination or the manipulation of the results of search, matching or recommendation algorithms. It is not a given that the final customer always loses out in terms of welfare in a case of self-preferencing: the pivot may indeed be more efficient than the firm it crowds out. There is, however, the loss of

[22] Innovation could also be a way to hinder competitors' market access; see for instance Schrepel (2018).

choice and the lock-in to a global offer that can increase exit costs if the decision is made to switch ecosystems.

The case of self-referral shows that, for all that, characterising and sanctioning these practices is not self-evident. As always, the risks of false positives and false negatives must be weighed up. The effects of an acquisition or the integration of a service into the dominant operator's offer can be favourable for the consumer and even for innovation. Moreover, the use of tools provided by AI and QC can certainly strengthen the competitive position of dominant firms, but only on the basis of the merits. The only limitation would be to consider that due to their very market position (in financial, informational, computational and algorithmic terms) the firms involved could impede the perpetuation of the competitive process through their activities.

Two - imperfect - solutions could be envisaged.

The first solution would be to extend the theory of essential infrastructures to assets that are not really in a natural monopoly situation and that could even appear as convenient facilities (Ridyard, 2004). These could be access to data, computational capacities or even algorithms, considering that a new entrant could not objectively replicate them, either in technical or financial terms. The risk would then be an incentive-based one. New entrants would be in a position to benefit unduly from the fruits of the - massive and risky - investments made by the dominant operator. Asymmetric regulation tools can affect the investment incentives of all market players (expropriation of competitive advantage and free-rider behaviour) and thus harm consumer welfare but also innovation.

One of the avenues may be access to data. This notion is present in the European Commission's Communication of 19 February 2020 on the European Data Strategy (EU Commission, 2020b). Given the predicted explosion in the amount of data collected - particularly due to the development of the Internet of Things[23] - the ability of firms to access these flows to train their AI will become even more important than it is today. The challenge is particularly important for new entrants or for firms that are not integrated into the ecosystems of the tech giants and are therefore excluded from these data flows. Guaranteeing universal and undistorted access to data could limit the barriers to entry for non-dominant companies and, above all, would allow

[23] The volume of data produced would increase from 33 Zb to 175 Zb between 2018 and 2025 (1 zettabyte represents 1021 bytes). At present, 20% is produced by connected objects. In 2025, this proportion will be 80%.

them to propose algorithms that are at least potentially as efficient as those of the dominant operators[24].

Pooling can be one way of neutralising the competitive advantage associated with data. Using such a competitive remedy can help to sustain (or enable) competition on a level playing field[25]. The rules for such access would be similar to essential infrastructure access injunctions [26] or FRAND-type compulsory licences: "access to data should only be made compulsory where specific circumstances require it, and where this is the case, on fair, transparent, reasonable, proportionate and/or non-discriminatory terms".

However, some observations must be made on this point. First, data are nothing without the algorithms that allow them to be used. Should we envisage in this context much more radical remedies as evoked by Gal and Petit (2020), consisting in sharing the algorithms themselves? Second, such a remedy could generate undesirable effects in competitive terms. By reducing the potential advantage of collecting (and possibly processing) data, it would reduce firms' incentives to invest and thus to innovate. Furthermore, if firms' AI algorithms were trained on similar data, the risks of algorithmic collusion would be even greater (Malaurie-Vignal, 2021b).

As noted above, computational capabilities or specific algorithms could in the extreme be considered as essential quasi-facilities that a new entrant or smaller competitor could not reasonably replicate due to less financial capacity or lack of ability to acquire adequate technical capabilities. Such an opening would lead to extending competitive remedies (or ex ante regulation) to objectives of rebalancing competitive forces that go well beyond the objectives of undistorted access to the market, which could be covered by a requirement of neutrality of platforms and algorithms. This would raise issues relating to the protection of competitors rather than competition and the net effect on the incentives for market players to invest and innovate.

[24] It is implicitly assumed that the difference in performance of algorithms depends on the quality and quantity of data available to the firms developing and implementing them. This is partly the case for machine learning A.I. or online search algorithms. However, other factors also play a role, such as the human and technical capacities of each firm.

[25] Here we discuss data control as a tool for erecting barriers to entry or for anticompetitive foreclosure. It can also act as a tool for exploitative abuse. As soon as a dominant player (e.g. a structuring platform) holds data whose access is essential to firms using its services (which sometimes produce this data via the transactions they initiate on the platform), it can offer access to it under unreasonable conditions, particularly in terms of pricing. Pooling access to data can therefore reduce these contractual imbalances and lower the cost of access to data, which in turn allows companies to shift their funding to the development of their algorithms (Marty, 2019).

[26] See on this point Autorité de la Concurrence (2020).

As seen above, the question would arise at two levels: in terms of both inter-platforms competition (i.e. competition for the market between ecosystems) and intra-platform competition, in the latter case involving concerns related to self-referencing practices.

The second solution would be to limit the dominant operators' capacity to diversify their activities. This extension of the principle of the dominant operator's special responsibility would lead to the imposition of a principle of speciality, comparable to that imposed on French public companies holding exclusive rights before the liberalisation of the network industries. The idea would be to consider that any diversification may place them in a position of strength vis-à-vis their competitors on the downstream or related markets concerned. Since the latter do not have the same resources as those produced by the dominance of the initial market, they cannot compete with the dominant firm which diversifies on its own merits[27].

Without the ability to ensure a level playing field, the scope for diversification may be limited. The risks of such a tool in terms of consumer welfare and innovation are also particularly significant. First, this remedy may prevent the dominant operator from improving its offer to the benefit of consumers by integrating many services. Secondly, it could perpetuate inefficient offers in the related market. The prevention of a distortion of competition could be paid for by blocking the competition process by prohibiting dominant companies from implementing practices whose net effect could be (albeit conditionally) favourable to the consumer. This uncertainty argues a priori for a case-by-case approach to practices that may be self-preferential and not for a per se prohibition[28].

However, the case-by-case approach undeniably raises concerns in terms of under-enforcement. The first problem relates to the difficulties of detecting the practices in question[29]. How to

[27] See the French Competition Council 1994 opinion related to the diversification strategies of the incumbents in the gas and electricity sector (Opinion 15-A-94, 10 May 1994).

[28] See DMA, Recital n°39 :

> *To safeguard a fair commercial environment and protect the contestability of the digital sector it is important to safeguard the right of business users to raise concerns about unfair behaviour by gatekeepers with any relevant administrative or other public authorities. For example, business users may want to complain about different types of unfair practices, such as discriminatory access conditions, unjustified closing of business user accounts or unclear grounds for product de-listings. Any practice that would in any way inhibit such a possibility of raising concerns or seeking available redress, for instance by means of confidentiality clauses in agreements or other written terms, should therefore be prohibited* […].

[29] This is also the argument of the panel of economic experts brought together by the Commission around the DMA to defend a per se approach: « Third, some of the possible anti-competitive behaviours by digital platforms (e.g., algorithm-based self-preference) are particularly difficult to observe. For these reasons, we believe there is a clear scope for a regulatory approach that applies primarily and differently to these digital platforms" (Cabral et al., 2021).

measure algorithmic manipulation practices without exposing oneself to symmetrical risks of false positives (sanctioning wrongly) or false negatives (considering erroneously the practices as compliant with the competition rules)? The solution adopted for the time being by the Commission, as shown by the 2017 Google Shopping decision, is to consider that the abuse is constituted as soon as the dominant operator treats its commercial partners differently from its own downstream services[30]. Such an understanding makes perfect sense but must leave room for a possible efficiency defence. The second problem is the availability of remedies if an undertaking is sanctioned for such a practice: the excluded undertaking may no longer be present on the market and the damage to competition irreversible.

These reasons may explain the preference of the panel of economists convened by the Commission to assess the DMA (Cabral et al., 2021) for a per se prohibition rule and not for the application of a rule of reason as would have been required by an approach related to the antitrust consensus which has been in force until recently: "We would suggest that any form of discrimination against third parties be deemed unlawful. In other words, we believe self-preferencing is a natural candidate for the "blacklist" of practices to be deemed anti-competitive and "per se" disallowed[31]".

Self-preferencing is a means of extending (and consolidating) dominance through internal growth. For a complementor, this may correspond to the logic of kill zone (Kamepalli et al., 2020). It is also possible to observe similar results through external growth strategies. The problem is then that mentioned in the introduction of killer acquisitions or more accurately that of consolidating acquisitions[32]. The issue of merger control is indeed one of the most decisive for the control of concentration phenomena. In its contribution of 19 February 2020, the French Competition Authority stressed that a large part of the competition concerns in the digital sector stemmed from the acquisition deals of large groups, which were not all killer acquisitions, but mainly consolidating acquisitions. These may be pre-emptive acquisitions of scarce resources (human and technical) or acquisitions that allow companies to grow but at the same time increase the market power of the firm or restrict the development potential of the target or the growth of another competing platform that could also have acquired it.

[30] EU Commission, decision 39740 Google Search (Shopping), 27 June 2017.
[31] For a critical view of the effects-based case-by-case approach and a defence of the application per se rules of reason in antitrust, see Chopra and Khan (2020).
[32] The report drafted by the panel of economic experts convened by the European Commission on the DMA (Cabral et al., 2021) indicates that between 2000 and 2020, the five Big Tech companies grouped under the name of GAFAM have acquired around 1000 companies. Google alone has bought on average one company every 3 weeks over the last 10 years.

The difficulty is that it is very difficult to assess the competitive risks associated with these vertical acquisitions (which can often be seen as conglomerate acquisitions at the time of control). However, the predictive tools of the present available to dominant companies allow them to identify consolidation opportunities and disruption risks much earlier. Faced with these capacities, ex ante control may not be sufficient. Control, even if it is updated ex post, can run into various pitfalls. First, it is difficult to reconstruct a future that has not happened and that could serve as a counterfactual. Secondly, which transactions could be controlled if the acquisitions concern products and services still well upstream of the market? Third, how can a theory of harm be established and possible remedies defined (Economides et al., 2020)?

For now the question of merger control by Big Tech has not yet been decided. We saw in our first section that, at the height of the crisis, a moratorium was proposed on Big Tech acquisitions in the United States. The European DMA does not contain any specific provisions other than a notification system[33]. This lack of a more binding provision has been criticised in the European project and the German, Dutch and French economy ministers have recently recommended the introduction of specific provisions in this sense[34].

In the United States, the bills introduced in the House of Representatives that we mentioned in the first section seem to go quite far in controlling external growth operations[35]. According to

[33] See the Recital n°31 of the DMA:

> *To safeguard the fairness and contestability of core platform services provided by gatekeepers, it is necessary to provide in a clear and unambiguous manner for a set of harmonised obligations with regard to those services. Such rules are needed to address the risk of harmful effects of unfair practices imposed by gatekeepers, to the benefit of the business environment in the services concerned, to the benefit of users and ultimately to the benefit of society as a whole. Given the fast-moving and dynamic nature of digital markets, and the substantial economic power of gatekeepers, it is important that these obligations are effectively applied without being circumvented. To that end, the obligations in question should apply to any practices by a gatekeeper, irrespective of its form and irrespective of whether it is of a contractual, commercial, technical or any other nature, insofar as a practice corresponds to the type of practice that is the subject of one of the obligations of this Regulation.*

The notification system is defined by the Article 12 of the proposal.

[34] See the press release *Strengthening the Digital Markets Act and Its Enforcement* (27 May 2021): https://www.bmwi.de/Redaktion/DE/Downloads/M-O/non-paper-friends-of-an-effective-digital-markets-act.pdf?__blob=publicationFile&v=4.

> *We have to strengthen and speed up merger control in particular vis-à-vis certain gatekeeper platforms to tackle the strategies of platform companies consisting in systematically buying up nascent companies in order to stifle competition. Article 12 of the DMA proposal lacks ambition in this context and this calls for further initiatives. A possibility is to enhance article 12 to modify the merger control system under Regulation (EC) No 139/2004 with two goals in mind. First, setting clear and legally certain thresholds for acquisitions by gatekeepers of targets with relatively low turnover, but high value. Second, adapting the substantive test to effectively address cases of potentially predatory acquisitions.*

[35] See "House Lawmakers Release Anti-Monopoly Agenda for "A Stronger Online Economy: Opportunity, Innovation, Choice" - Bipartisan legislation will restore competition to digital marketplace and rein in largest tech platforms, 11 June 2020.

the proposed bill, acquisitions of firms that compete with platforms, that are emerging or potential competitors, that could strengthen the platform position in adjacent markets or that would strengthen the platform's dominant position would not be allowed [36]. Thus, the Platform Competition and Opportunity Act would drastically reduce the external growth possibilities of Big Tech, much as mergers were virtually prohibited per se for dominant companies in the 1960s during the Brown Shoe case cited above. The assault on Big Tech thus returns to a logic of antitrust that focuses not on effects but on market structures and power phenomena, as was the case before the rise of the Chicago School.

The structure argument underpins the *Platform Competition and Opportunity Act*, just as the new European competition tool seemed to echo the notion of non-faulty monopolisation (Cartapanis and Marty, 2020), where a company's market power made it structurally impossible to challenge its position. The power argument, for its part, takes up a logic also inspired by the hipster antitrust movement: access controllers can exercise coercive power over their trading partners, acting as private market regulators (Teachout and Khan, 2014). This is for example the purpose of the *Ending Platform Monopolies Act*, which is presented as having the objective of "eliminat[ing] the ability of dominant platforms to leverage their control over across multiple business lines to self-preference and disadvantage competitors in ways that undermine free and fair competition[37]".

The dual argument of the DMA, contestability and fairness, can therefore be identified in the various US initiatives. The development of disruptive technologies might not be sufficient to challenge acquired positions if access controllers were able to foreclose competitors' access to the market and control the conditions of the competitive dynamic to their benefit[38].

## V – Conclusion

36 https://cicilline.house.gov/sites/cicilline.house.gov/files/documents/Platform%20Competition%20and%20Opportunity%20Act%20-%20Bill%20Text%20%281%29.pdf

37 https://judiciary.house.gov/news/documentsingle.aspx?DocumentID=4591

38 The merger guidelines revision was one of the main step toward a « more economic approach » in 1982 under the supervision of William Baxter in the Reagan administration. The evolution to come could be very significant if we consider the 9 July 2021 Statement of FTC Chair Lina Khan and Antitrust Division Acting Assistant Attorney General Richard A.: *Powers on Competition Executive Order's Call to Consider Revisions to Merger Guidelines*. According to the press release: "We must ensure that the merger guidelines reflect current economic realities and empirical learning and that they guide enforcers to review mergers with the skepticism the law demands. The current guidelines deserve a hard look to determine whether they are overly permissive" (https://www.ftc.gov/news-events/press-releases/2021/07/statement-ftc-chair-lina-khan-antitrust-division-acting-assistant).

The development of new GPTs can be seen both as the promise of a re-starting of the competition process or the risk of its extinction. At the same time, these technologies are likely to make it even more difficult for competition authorities to identify relevant counterfactuals and characterise competitive risks, particularly as they may allow firms to crowd out competition before it even emerges (by guiding its developments through sentiment analysis methods, through information accumulated online about the directions taken by competitors, or by cloning competitors' products through now casting tools).

Authorities also see their informational disadvantages (in terms of incompleteness and information asymmetry) increase in the context of identifying competitive risks. It could even be argued that the possibilities of setting the terms of merger control not on the basis of the target's market shares but on the basis of its market valuation or the size of the transaction could be thwarted if the predatory firm could identify risks and opportunities before the less informed market could. This is both the promise and one of the risks of artificial intelligence and quantum computing.

## References


Akman P., (2021), "A Web of Paradoxes: Empirical Evidence on Online Platform Users and Implications for Competition and Regulation in Digital Markets", *Working paper*, March, http://dx.doi.org/10.2139/ssrn.3835280

Arnold T., (1940), *The Bottlenecks of Business*, Reynal and Hitchcock, New York.

Autorité de la Concurrence, (2020), *Contribution de l'Autorité de la concurrence au débat sur la politique de concurrence et les enjeux numériques*, 19 février.

Baker J.B., Rose N.L., Salop S.C., and Scott-Morton F., (2020), "Recommendations and Comments on the Draft Vertical Merger Guidelines", http://dx.doi.org/10.2139/ssrn.3543736

Baumol W.J. and Ordover J.A., (1985), "The Use of Antitrust to Subvert Competition", *Journal of Law and Economics*, 28(2), pp. 247-265

Beck M. and Scott-Morton F., (2020), "Evaluating the Evidence on Vertical Mergers", https://dx.doi.org/10.2139/ssrn.3554073

Botta M., (2021), "Sector Regulation of Digital Platforms in Europe: Uno, Nessuno e Centomila", *Journal of European Competition Law and Practice*

Bougette P., Budzinski O. and Marty F., (2019), “Exploitative Abuse and Abuse of Economic Dependence: What Can We Learn from an Industrial Organization Approach?”, *Revue d’Economie Politique*, 129(2), pp.261-286

Bourne R., (2019), “Is This Time Different? Schumpeter, the Tech Giants, and Monopoly Fatalism”, *CATO Institute Policy Analysis*, n°872, June.

Cabral L., Haucap J., Parker G., Petropoulos G., Valletti T. and Van Alstyne M., (2021), *The EU Digital Markets Act*, Publications Office of the European Union, Luxembourg.

Cartapanis M. and Marty F., (2020), “Towards New Tools in Competition Law: Some legal and economic considerations”, *Competition forum*, December, art. 8, https://competition-forum.com/towards-new-tools-in-competition-law-some-legal-and-economic-considerations/

Cartapanis M. and Marty F., (2021), « La sous-commission pour l’Antitrust de la commission des lois de la Chambre des représentants américains remet son rapport d’enquête sur la concurrence dans les marchés numériques et dresse des perspectives d’évolutions radicales de la politique de concurrence américaine », *Concurrences*, 1-2021, pp.109-112.

CERRE, (2021), *Making the Digital Markets Act more resilient and effective*, https://cerre.eu/publications/european-parliament-digital-markets-act-dma-resilient-effective/

Choi H. and Varian H., (2012), “Predicting the Present with Google Trends”, *Economic Records*, 88, pp. 2-9

Chopra R. and Khan L.M., (2020), "The Case for "Unfair Methods of Competition" Rulemaking." *The University of Chicago Law Review* 87 (2): 357–80.

Crawford G.S., Crémer J., Dinielli D., Fletcher A., Heidhues P., Schnitzer M., Scott-Morton F M., and Steim K., (2021), “Fairness and Contestability in the Digital Marlets Act”, Yale Tobin Center for Economic Policy, *Policy Discussion Paper*, n°3, July.

Davenport T. Guha A., Grewal, D. and Bressgott T., (2020), "How artificial intelligence will change the future of marketing". *Journal of the Academy of Marketing Science*. 48:24-42.

Dubus A., (2021), “Behavior-Based Price Discrimination with endogenous data collection and strategic customer targeting”, *Working Paper*, hal-03269586, https://hal.archives-ouvertes.fr/hal-03269586

Economides N., Kwoka J., Philippon T., Singer H. and White L.J., (2020), "Comments on the DoJ/ FTC Draft Vertical Merger Guidelines", NET Institute, *Working Paper* 20-04, February.

Evans D.S., (2017), "Why the Dynamics of Competition for Online Platforms Leads to Sleepless Nights But Not Sleepy Monopolies", SSRN *working paper*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3009438

European Union Commission, (2020a), *Proposal for a Regulation on contestable and fair markets in the digital sector* (Digital Markets Act), COM(2020) 842 final, 15 December.

European Union Commission, (2020b), *A European Strategy for data*, Communication, COM(2020) 66 final, 19 February.

Fox E., (2003), "We Protect Competition, You Protect Competitors", *World Competition*, 26(2), pp.149-165

FTC, (2020), *Dissenting Statement of Commissioner Rohit Chopra Regarding Zoom Video Communications, Inc.*, 6 November.

Gal M. and Petit N., (2021), "Radical Restorative Remedies for Digital Markets", B*erkeley Technology Law Journal*, 37(1).

Hamilton W.H., (1932), "The Control of Big Business", *The Nation*, 134, p.591

Hovenkamp H., (2018), "Whatever Did Happen to the Antitrust Movement", *Notre Dame Law Review*, 94, p.583 et s.

Kamepalli S.K., Rajan R.G. and Zingales L., (2020), "Kill Zone", *SSRN Working Paper*, 3594344

Khan L., (2017), "Amazon's Antitrust Paradox", *Yale Law Review*, 126(3), pp.710-805.

Khan L., (2019), "The Separation of Platforms and Commerce", *Columbia Law Review*, 119(4), pp. 973-1098.

Lambrecht A. and Tucker C.E., (2017), "Can Big Data Protect a Firm from Competition?", *Competition Policy International Antitrust Chronicle*, January

Lee R.S., (2013), "Vertical Integration and Exclusivity in Platform and Two-Sided Markets", *American Economic Review*, 103(7), pp.2960-3000.

Lévêque F., (2021), *Les entreprises hyper-puissantes – Géants et Titans, la fin du modèle global ?*, Odile Jacob, 232 p.

Malaurie-Vignal M., (2021a), « La loyauté, l'égalité et l'équité en droit de la concurrence », *Contrats Concurrence Consommation*, n° 2, février, repère 2

Malaurie-Vignal M., (2021b), « Algorithmes et concurrence », *Contrats, concurrence, consommation*, n°6, juin, pp.1-17.

Manne G. and Stapp A., (2019), "This too shall pass: Unassailable monopolies that were, in hindsight, eminently assailable", *International Center for Law and Economics*, April.

Marty F., (2019), "Plateformes de commerce en ligne et abus de position dominante : réflexions sur les possibilités d'abus d'exploitation et de dépendance économique", *Thémis*, volume 53, pp. 73-104.

Marty F., (2020a), *La concentration du pouvoir économique depuis la pandémie*, Prisme, Centre Cournot, n° 41, octobre.

Marty F., (2020b), "Connected objects and competition law: the risk of locking down vertical silos", *in* The Law and Connected Objects, Parachkevova-Racine I., Racine J.-B. and Marteu T., eds., Larcier, Bruxelles, pp.202-208.

Marty F., (2020c), « Accès aux données, coopétition intra-plateforme et concurrence inter-plateformes numériques », *Revue d'économie industrielle*, 169, 2020-1, pp. 221-246.

Marty F., (2021), "Competition and Regulatory Challenges in Digital Markets: How to Tackle the Issue of Self-Preferencing?", *GREDEG Working Paper* n°2021-20, April 2021

Marty F. and Pillot J., (2021), "Cooperation, dependence, and eviction: how platform-to-business coopetition relationships should be addressed in mobile telephony ecosystems", *in* Michal Gal and David Bosco eds. *Challenges to Assumptions in Competition Law*, Edward Elgar, pp. 2-22.

Marty F. and Warin T., (2020), "Keystone Players and Complementors: An Innovation Perspective", with Thierry Warin, *Cahier Scientifique du CIRANO*, 2020s-61, November 2020

Mateu, J. and Pluchart, J. (2019). L'économie de l'intelligence artificielle. *Revue d'économie financière*, 3(3), pp. 257-272. https://doi.org/10.3917/ecofi.135.0257

Nemitz P., (2019), "Foreword – Power in Times of Artificial Intelligence", *Delphi*, 2(2), pp.158-160

Padilla J., Perkins J., Piccolo S., and Reynolds P., (2021),"Merger Control Z", available at SSRN: https://ssrn.com/abstract=3889230

Padilla J. and Petit N., (2020), "Competition Policy and the Covid-19 Opportunity", *Concurrences*, 2-2020, pp.2-6.

Petit, N., (2020), *Big Tech and the Digital Economy - The Moligopoly Scenario*, Oxford University Press

Petit N., (2021), "The Proposed Digital Markets Act (DMA): A Legal and Policy Review", *SSRN Working Paper*, https://dx.doi.org/10.2139/ssrn.3843497

Philippon T., (2019), *The Great Reversal: How American Gave Up Free Markets*, Harvard University Press.

Polgreen P.M., Chen Y., Pennock D.M. and Nelson F.D., (2008), "Using Internet Searches for Influenza Surveillance", *Clinical Infectious Diseases*, volume 47, pp.1443-1448.

Sahin K. and Barker T., (2021), *Europe's Capacity to Act in the Global Tech Race: Charting a Path for Europe in Times of Major Technological Disruption*, DGAP Report, n°6

Stigler Center for the Study of the Economy and the State, (2019), *Stigler Committee on Digital Platforms*, Final Report, Chicago Booth.

Rahman S., (2018), "The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept", *Cardozo Law Review*, 39, pp.1621-1689.

Ridyard D. (2004), "Compulsory Access under EU Competition Law: a New Doctrine of "Convenient Facilities" and the Case for Price Regulation", *European Competition Law Review*, n° 11, pp. 669-674

Rubinfeld D.L. and Gal M.S., (2017), "Access Barriers to Big Data", *Arizona Law Review*, 59, pp.339-381.

Shapiro C., (2010), "The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years." *Antitrust Law Journal*, 77(1), pp.49-108.

Schrepel T., (2018), *L'innovation prédatrice en droit de la concurrence*, Bruylant, Bruxelles.

Schweitzer H., (2021), "The Art to Make Gatekeeper Positions Contestable and the Challenge to Know what is Fair: A Discussion of the Digital Markets Act Proposal", *forthcoming*, ZEuP 2021, Issue 3, https://ssrn.com/abstract=3837341

Teachout Z. and Khan L., (2014), "Market Structure and Political Law: A Taxonomy of Power", *Duke Journal of Constitutional Law and Public Policy*, 9(1), pp. 38-74

Toledano J., (2020), *GAFA – Reprenons le pouvoir !*, Odile Jacob, Paris.

Trajtenberg M., (2019), "Artificial Intelligence as the Next GPT: A Political-Economy Perspective", *working paper*, NBER, https://www.nber.org/papers/w24245

US House of Representatives, Judiciary Committee, (2020), *Investigation on Competition in Digital Markets*, October.

Warin T. et de Marcellis-Warin N., (2014), « Un état des lieux sur les données massives », CIRANO, *Rapport Bourgogne*, 2014RB-01, juin.

Wolfe M., (2020), "Movements, Moments, and the Eroding Antitrust Consensus", *Fordham Intellectual Property, Media & Entertainment Law Journal*, 30(4), pp.1157-1184.

Wong-Ervin K.W., (2019), "Antitrust analysis of vertical mergers: Recent developments and economic teachings", *Antitrust Source*, 18(4), 1–13, p.1.

Woodcock R.A., (2021), "The contrasting approaches to power of the modern state and the antitrust laws: lessons for platform regulation", https://dx.doi.org/10.2139/ssrn.3704450

Wright J. D., Ginsburg D. H., Lipsky T., & Yun J. M., (2020), "Connecting Vertical Merger Guidelines to sound economics", *Truth on the market*.

Wu T (2018), *The Curse of Bigness: Antitrust in the New Gilded Age*, Columbia Global Reports