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Theories of Harm for Digital Mergers – Note by the European Union

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1. Introduction

1. In recent years, a wave of acquisitions in the digital economy have led the Commission to assess a substantial and increasing number of concentrations. This growing decisional practice has taken place in the midst of an intense debate focussing on three broad issues, namely: (i) the possibility to assert jurisdiction over potentially problematic cases, (ii) the substantive assessment of cases, and (iii) the design and implementation of effective remedies, in light of the specific features of the digital economy. This Paper aims to inform this debate with a systematic review of the European Commission's decisional practice as regards substance. First, a brief note on jurisdiction and on remedies.

2. The Commission's 2016 evaluation on jurisdictional aspects of EU merger control showed that a small number of transactions that could impact competition may have escaped merger control review at both EU and national level.[1] This finding confirmed mounting concerns over the frequency, notably in the digital area, of acquisitions involving firms that play a significant competitive role on the market(s) at stake despite generating little or no turnover at the time, thus falling below EU or even national merger notification thresholds. In 2021, the Commission addressed any jurisdictional gap by giving full effect to Article 22 of the EU Merger Regulation ("EUMR"). The Commission clarified that, under that provision, it would henceforth encourage and accept referrals, and thereby assert jurisdiction, in certain cases where referring Member States do not have jurisdiction under the national thresholds. Suitable cases include acquisitions of nascent or particularly innovative competitors. This empowers Member States to request the review of such transactions, including in digital and tech markets, that would otherwise fall below national notification thresholds, provided that the conditions of Article 22 of the EUMR are met.[2] The General Court recently confirmed the legality of that approach in its judgment in *Illumina v European Commission*.[3] In parallel, Article 14 of the recently adopted Digital Markets Act ("DMA") obliges gatekeepers to inform the Commission of any intended concentration where the merging entities or the target provide core platform services or any other services in the digital sector or enable the collection of data, irrespective of their notifiability under the EUMR.[4] The purpose of this provision is to ensure that the Commission is made aware of such transactions in a timely manner, and to inform Member States accordingly. This allows the relevant authorities to request a referral of such transactions to the Commission for the purposes of merger control.[5]

[1] Commission Staff Working Document Evaluation of procedural and jurisdictional aspects of EU merger control, Brussels, 26.3.2021, SWD(2021) 66 final

[2] 23 March 2021 Commission Guidance on the application of the referral mechanism set out in Article 22 of the Merger regulation to certain categories of cases.

[3] General Court judgment of 13 July 2022 in case T-227/21, *Illumina v European Commission* (ECLI:EU:T:2022:447).

[4] 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, Article 14(1).

[5] 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 (Digital Markets Act), OJ L 265, 12.10.2022, p. 1–66, recital 71.

3. Remedies in digital and tech mergers, although beyond the scope of this Paper,[6] remain a hotly-debated topic, with certain commentators suggesting that digital mergers should not be allowed to proceed without structural remedies. Differences in applicable laws explain, to a degree, the different approaches adopted by different jurisdictions. Differences in the nature of the cases reviewed also explain the seemingly different outcomes reached across agencies. The Commission, for its part, has accepted non-divestiture remedies in specific cases. The Commission's policy follows applicable EU rules and case law, which bars the Commission from automatically dismissing non-divestiture measures that might adequately remedy competition concerns. In horizontal cases, the Commission generally does not accept remedies falling short of a divestiture, but in non-horizontal mergers, other commitments may be suitable to resolve concerns if they are at least equivalent to divestitures in their effects. As a result, in specific circumstances, the Commission has accepted remedies that either consisted in a form of access to infrastructure, networks, services, data, or the granting of certain rights to third parties guaranteeing the interoperability of complementary elements (so-called "interoperability" remedies), both on a non-discriminatory and transparent basis.

4. This Paper's focus is the substantive assessment of digital mergers, which has been the subject matter of many reports and studies across jurisdictions.[7] These reports examine the specific competitive risks raised by acquisitions in the digital field. They generally highlight the fact that the particular nature of digital markets tends to amplify the anticompetitive effects of even fringe acquisitions. This concern stems from the risk that strong network effects and advantages generated by data access, which are generally integral to digital services, reinforce the market power of large digital platforms engaging in external growth. In broad terms, the concern is that large digital and tech companies may be able to stifle competition by pre-empting competitive disruptions by small or nascent innovative players. Preventing such effects poses several challenges to competition agencies, including the assessment of a target's potential competitive significance and the fact that these transactions often involve complementary rather than overlapping products, thus potentially leading to non-horizontal effects. Furthermore, the emergence of digital ecosystems involving relationships across multiple complementary services, led to new acquisition strategies and, therefore, novel competitive effects.

5. The body of this Paper examines how these concerns translate in concrete cases and the precise anticompetitive mechanisms and likely harm to competition uncovered by the Commission's investigation in such cases.

2. The Substantive Assessment of Digital and Tech Mergers

6. Digital or tech products are often integrated into broader systems and therefore have to interoperate with each other, or are offered among a multitude of related services. Digital services are often offered on multi-sided platforms potentially controlled by companies that

[6] For a more detailed overview of the Commission's recent remedies practice in relation to mergers in the digital and tech sectors, see the Commission Policy Brief published in December 2022, '*Merger Enforcement in Digital and Tech Markets: an Overview of the European Commission's Practice'*, available here: https://competition-policy.ec.europa.eu/system/files/2023-01/kdak22002enn_competition_policy_brief_digital_mergers.pdf

[7] See, for example, Special Advisers Report to the European Commission, Competition policy for the digital era (2019); Report of the Digital Competition Expert Panel to the UK Chancellor of the Exchequer and Secretary of State for Business, Energy and Industrial Strategy, *Unlocking digital competition* (2019).

have a dual role as intermediary and competitor on these platforms, and can thus potentially exercise or leverage market power through multiple routes and strategies. Interconnectivity and platform-based offerings are therefore key aspects that competition agencies take into account in reviewing digital and tech mergers.

7. The complementarities and interconnections in digital ecosystems therefore complicate the assessment of digital mergers. The addition of another product or service to a digital platform or ecosystem can create competition concerns in different ways. The acquirer may leverage market power from its core markets into a new market thereby expanding its ecosystem. Alternatively, the acquiring company may acquire a company in a defensive strategy to protect its core markets, for instance by increasing barriers to entry and expansion or by taking out a potential threat.

8. This particular context led authorities to reflect on whether the applicable review framework is well-adapted to digital and tech mergers. Traditionally, competition agencies distinguish between horizontal and non-horizontal effects, depending on whether a merger concerns overlapping firms engaged in head-to-head competition, or firms otherwise related (i.e., vertically or in a conglomerate relationship). The particular features of digital markets tend to suggest that non-horizontal theories of harm would be prevalent when reviewing such mergers.

9. Digital and tech mergers reviewed by the Commission have primarily involved complementary products or services, while horizontal effects were mainly relevant in the Commission's decisional practice where mergers combined datasets. As a result, the Commission mainly assessed various forms of foreclosure risks. Such strategies involve a merged entity leveraging market power in a given product or service into another, related market, for example by way of tying or bundling practices. The Commission has also examined vertical risks, notably the risk that the merged entity would foreclose competitors by refusing or degrading the supply of an input. Finally, some concentrations may also create or strengthen a dominant position, particularly in the context of digital ecosystems, which requires assessing the risk that expansion or entry by rival firms may be hindered by the merger.

10. In this context, the Commission has been able to effectively conduct its investigations while remaining within its assessment framework and backing up its findings to the same legal standards that apply to mergers in all other sectors. The Commission has thus examined (and is currently reviewing) a series of situations, falling under conglomerate, vertical, horizontal theories of harm. Each of these broad categories relate to a particular type of competitive harm, with horizontal matters usually focusing on the creation or reinforcement of market power, whereas non-horizontal effects generally concern the foreclosure of competitors. Nonetheless, a great multitude of strategies can bring such effects. The Commission's decisional practice illustrates the variety of theories of harm that it has examined. It also demonstrates the flexibility of the EU merger framework and its aptitude at capturing novel competitive risks.

3. Conglomerate Relationships: Interoperability Degradation

3.1. Overview of the Commission's decisional practice

11. Products in the digital and technological space, including both software and hardware components, often need to interact with each other as part of a broader system or equipment. Mergers involving companies that supply different components of a system may thus raise specific interoperability issues, as they might lead the merged entity to focus

its efforts on integrating its own components while blocking or degrading the interoperability of competing components with its own, thus foreclosing these competitors from the relevant market.

12. Interoperability degradation refers to a relative deterioration of the conditions in which third parties' products interact with the merged entity's own products post-transaction (and/or vice-versa). The effect of such a strategy is ultimately that customers would prefer the merged entity's combined products over those of rival suppliers. It is a form of technical tying between products belonging to distinct relevant markets that are closely related due to their interoperation in a broader system.[8]

13. In practice, degrading interoperability can be achieved in two main ways. *First*, as has been the most common occurrence in the Commission's prior cases, it can be achieved by degrading the supply of assets necessary to ensure interoperability (information, interfaces, prototypes etc.). *Second*, interoperability can be affected by degrading the technical support necessary to ensure or improve interoperability.[9] Interoperability degradation can be temporal (by delaying the provision of the relevant assets or support to competitors) or it can be qualitative (by decreasing the quality of the assets or support provided).

14. A strategy to degrade interoperability can also take various forms: (i) it can be total (by preventing the functioning of third party products altogether), or partial (by only limiting their functionality); (ii) it can concern all third parties, or target specific companies or categories of competitors;[10] and (iii) it can result from "negative" discrimination (by deteriorating the performance of third parties' products), or "positive" discrimination, by improving the relative performance of the merged entity's products when used together.[11]

15. The likelihood that these strategies will be adopted post-merger must be shown to the requisite legal standard. The legal framework for assessing conglomerate effects is defined in the Commission's 2008 Non-Horizontal Guidelines.[12] The Guidelines rely on a three-prong test under which the Commission must show that the merged entity would have

[8] Technical tying can also take other forms, including the technical combination of products in a persistent form (for instance by offering an integrated solution relying on two previously distinct products).

[9] Such concerns were for instance retained in case M.8314 - *Broadcom/Brocade* (2017), due to the fact that fibre channel switches providers need to provide technical support to HBA manufacturers, both throughout the development of the products (to ensure interoperability in advance of launches, for instance via tests) and later to solve technical issues that may occur at end customers' premises. In contrast, the Commission has dismissed similar concerns in other cases, including case M.9660 - *Google/Fitbit* (2020) (see paragraphs 763 to 771).

[10] In *Google/Fitbit*, for instance, the Commission assessed the merged entity's potential strategy of selectively degrading the way that the Android OS interacts with wrist-worn wearable devices (as opposed to all other devices or software that also interact with the OS), see paragraph 717.

[11] The latter strategy is usually harder to detect, which can make it a more realistic theory of harm. In *Broadcom/Brocade*, the Commission investigated *inter alia* a possible strategy by the merged entity to favour its own fibre channel HBAs by allowing them to function with new or improved features when interoperating with the merged entity's own fibre channel switches (see paragraph 170).

[12] Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ C 265, 18.10.2008, pp. 6-25 ("Non-Horizontal Merger Guidelines"), paragraphs 91-118.

(i) the ability and (ii) the incentive to foreclose competitors by engaging in a conglomerate strategy, and would thus have (iii) an adverse impact on competition and harm consumers.

3.2. The ability to foreclose by degrading interoperability

16. In order to prove foreclosure, the Commission must first show the merged entity's ability to foreclose competitors by engaging in an interoperability degradation strategy. The starting point to find such ability will normally lie in assessing the market power of the merged entity in one of the markets concerned. Market power may be evidenced for instance by high market shares and limited competitive constraints for the relevant products. While a finding of market power does not necessarily require that a dominant position be characterized, the Commission has often relied on market shares consistent with dominance.[13] The Commission then generally examines the scope of conceivable foreclosure strategies, supporting circumstantial evidence and the existence of counter-strategies available to competitors.

17. First, such harm only arises if the merged entity has the technical ability to degrade the manner in which their products interoperate with those supplied by competitors. Such degradation may vary in scope. For instance, it may concern all third party products,[14] or may instead focus on *certain* categories of competitors. Such selective degradation strategies require that merging firms are able both to identify specific companies (or groups of companies) and to technically engage in a targeted interoperability degradation. Evidence of prior instances of interoperability degradation by the merging parties or by other companies in the same or similar markets can contribute to showing that strategy's practical feasibility.[15] For example, in *Google/Fitbit*, the Commission assessed Google's ability to degrade Android's smart mobile's OS with competing wearable devices. To do so, it observed Apple's existing practices in relation to its Apple Watch, notably allowing some functionalities exclusively on Apple Watch but not third-party smartwatches. The existence of such conduct in the sector supported the Commission's finding that Google would also have a similar technical ability to downgrade interoperability with third party wrist-worn devices manufacturers.[16]

18. In addition to the practical feasibility of degrading interoperability, the merged entity's ability to foreclose competitors may also rely on the presence of a large pool of common customers for the interoperating products and services. That being said, interoperability degradation may also constitute an effective foreclosure strategy in situations where the relevant products are not necessarily sold to the same customers, provided the products do interact.[17] In situations where the relevant products are sold to the

[13] See *Broadcom/Brocade*, at paragraphs 153-154 and case M.9945 - *Siemens Healthineers/Varian Medical Systems* (2021), at paragraphs 94 et seq. For a formal finding of dominance, see case M.8306 - *Qualcomm/NXP* (2019), at paragraphs 378-404.

[14] In *Qualcomm/NXP*, which involved the interoperation of different chips and chipsets, the Commission found that the merged entity would be able to reengineer the interfaces necessary to ensure interoperability post-transaction, thus degrading interoperability for all third party products used alongside the merged entity's chips.

[15] Previous examples of comparable interoperability degradation strategies are generally relevant for all legs of the Commission's assessment of foreclosure, and not only ability to foreclose.

[16] See *Google/Fitbit*, paragraphs 754 and 772.

[17] For example, an interoperability degradation strategy involving both software and hardware could have foreclosure effects in situations where end customers purchase the software themselves whereas the hardware is purchased by system integrators who incorporate it into the server that is then sold to the end customer.

same customers, the existence of a large pool of common customers supports the finding that the merged entity is able to engage in a foreclosure strategy, because the more customers tend to buy both products or services, the more purchasing patterns would be affected through technical tying.[18]

19. Illustrative examples can be found in *Qualcomm/NXP* or *Google/Fitbit*. In *Qualcomm/NXP*, the Commission found that the merged entity risked degrading the interoperability of Qualcomm's broadband chipsets with NFC and SE chips supplied by NXP's competitors. It found that the merged entity's customers, namely mobile device OEMs, purchased both LTE baseband chipsets, a market in which Qualcomm was dominant, and NFC/SE chips and software from NXP and its competitors.[19] In *Google/Fitbit*, the Commission was concerned that Google would leverage Android's dominant position in licensable smart mobile OS to degrade its interoperability with competing wearable manufacturers, thus foreclosing rival device makers. The Commission found that virtually all customers who purchase wrist-worn wearable devices also purchase smartphones, including Android smartphones which rely on Google's Android OS. As Google holds a dominant position in the supply of licensable OS for smart mobile devices, customers' reliance on interoperability with the Android OS was significant.[20]

20. The second important type of evidence to demonstrate the merged entity's ability relates to market conditions, although these are generally not sufficient in themselves to establish or dismiss the existence of a conglomerate strategy. One example is the alignment of the distinct products' release dates (or "roadmap alignment" of the two category of products over time), which can support the finding of the merged entity's ability to foreclose. This is because roadmap alignment makes it theoretically possible to enforce a foreclosure strategy within the shorter term, i.e. at the beginning of the next products' life cycle. However, such alignment is not a necessary factor in establishing such ability to foreclose.[21]

21. Similarly, the wider regulatory environment (such as data protection or privacy rules as explained further below) is taken into account in assessing the ability of merging parties to engage in a particular course of action. However, the Commission has typically interpreted such regulatory obligations narrowly, and has approached industry standards in a similar way. For example, the Commission previously concluded that the mere existence of standards and standard-setting organisations is insufficient by itself to demonstrate a lack of ability to engage in an interoperability degradation strategy. *First*, standards can apply to only part of the relevant product(s).[22] *Second*, standards may also be proprietary (partly or fully), or become so post-transaction. However, the Commission will be less likely to find an ability to foreclose when the relevant products rely on open standards

[18] See Non-Horizontal Merger Guidelines, paragraph 100.

[19] *Qualcomm/NXP*, paragraphs 378 et seq. and 546 et seq.

[20] *Google/Fitbit*, paragraphs 732 to 735.

[21] See case M.5984 - *Intel/McAfee* (2011), paragraph 119. The Commission found that the merged entity would have the ability to foreclose in spite of Intel's cycle for new CPUs being around five years whereas security software development generally occurred within 6-12 months. Intel regularly collaborated with security software vendors throughout the duration of CPU development, particularly to ensure interoperability. As a result, the lack of roadmap alignment between CPUs and security software was not particularly relevant to ensure interoperability.

[22] See *Qualcomm/NXP*, paragraphs 776 and 777. The Commission found that the interfaces of NFC and SE chips were only standardised insofar as the physical/hardware layer was concerned, thus leaving room for interoperability degradation beyond this layer.

licensed on fair, reasonable, and non-discriminatory ("FRAND") terms. For instance, in *Nvidia/Mellanox*, the Commission took into account the fact that Mellanox's network adapters and Nvidia's GPUs relied on the Peripheral Component Interconnect Express ("PCIe") standard in its assessment of the merged entity's (technical) ability to foreclose. PCIe is an open industry standard, which is the de facto standard for interconnecting systems within a server, and is available on FRAND terms.[23]

22. Third, the ability of competitors and customers to engage in a counterstrategy is also relevant for the Commission's assessment. Counterstrategies may mitigate or neutralize the merged entity's ability to engage in interoperability degradation.[24] However, in order to be taken into account, such counterstrategies should be deployable in a relatively short period of time and for limited costs. Reverse engineering has generally not been deemed sufficient to counter a merged entity's foreclosure strategy, due to the costs and time required, as seen, for example, in *Intel/McAfee*, where the Commission found that any effort to reverse engineer Intel's CPUs would be partial, time-consuming and prohibitive in terms of costs.[25]

3.3. The incentive to foreclose by degrading interoperability

23. Assessing the profitability of degrading interoperability generally requires balancing out foregone revenues and increased profits resulting from the degradation. An interoperability degradation strategy can be profitable if foreclosure can be expected to lead to material gains benefitting the merged entity. Such gains generally result from increased sales and/or higher prices for one or more of the interoperating products. The assessment of losses stemming from a foreclosure strategy, on the other hand, requires assessing the extent to which customers might switch away to alternative suppliers as a result.

24. Whether the relevant companies offer products for which there are few credible alternatives thus plays an important role in this assessment. When the merged entity offers such products, it is unlikely to lose a significant amount of sales if it engages in foreclosure strategies. The Commission nevertheless examines whether such incentives can be constrained. For example, it will examine whether potential targets of interoperability degradation also offer products in other markets for which there are few credible alternatives and with which the merging parties' products need to interact, in which case they may be able to retaliate against the merged entity's degradation strategy, thereby creating a counter-incentive. This assessment was decisive to dismiss competition concerns in *Nvidia/Mellanox*. The case concerned Mellanox's network adapters,[26] products that interact with Nvidia's graphics processing units ("GPUs"). In this case, the Commission found that CPUs were critical for every device or system with which the parties' products had to interoperate. AMD and Intel, which were both competing with Nvidia on the GPU market and thus potential foreclosure targets, accounted for the vast majority of CPU sales, which meant their CPUs could thus be considered must-haves. As a result, the merged

[23] Case M.9424 - *NVidia/Mellanox* (2019), paragraph 202.

[24] Counterstrategies by competitors and customers are also generally relevant throughout the Commission's assessment of foreclosure, and not only to assess the ability to foreclose.

[25] *Intel/McAfee*, paragraph 145.

[26] Network adapters are hardware elements that allow various servers within a datacentre to communicate with each other.

entity would be unlikely to have the incentive to downgrade the interoperability of AMD or Intel's GPUs.[27]

25. In addition to lost revenues, the Commission takes into account the reputational damage that may result from an interoperability degradation, potentially leading customers to switch away to out-of-market alternatives, thus making any foreclosure strategy unprofitable. Such damage may affect the merged entity, or more broadly, the relevant ecosystem or technology. For instance, in *Broadcom/Brocade*, a case that involved end customers requiring both (Brocade's) fibre channel switches, which connect multiple servers and storage devices, and (Broadcom's) fibre channel host bus adapters ("HBAs"), the Commission was concerned that the merged entity would degrade the interoperability between its own fibre channel switches and competing HBAs. The Commission assessed whether a foreclosure strategy would tarnish the reputation of Broadcom's fibre channel technology (to the benefit of other networking technologies such as, e.g., cloud or IP/Ethernet). It found that the technical advantages of fibre channel over competing technologies meant that the merged entity would still have the incentives to foreclose competitors[28] but that the materiality of reputational damage will vary based on the nature or severity of the interoperability degradation strategy, For example, a selective or limited degradation of interoperability targeting fewer companies and/or new entrants could have a more limited impact in terms of reputational damage, being likely less visible. Similarly, in complex value chains including many hardware and software components, users may not be able to identify the source of a decreased performance. In *Meta/Kustomer*,[29]for instance, the Commission found that customers would be likely to first and foremost blame their direct supplier, i.e. the foreclosed party, for degradation issues. Concretely, to assess incentives, the Commission and the merging parties may engage in economic analyses, notably to assess diversion rates. In *Google/Fitbit*, the Commission reviewed economic analyses submitted by Google, which aimed at showing that a degradation strategy would be unprofitable for Google. The Commission ultimately found that the model submitted by Google did not accurately factor in certain market features, and therefore overestimated the amount of demand switching to iOS that would result from a foreclosure strategy.[30]

3.4. The competitive impact of foreclosure by degrading interoperability

26. Finally, the Commission considers the overall impact of foreclosure on prices, quality, choice and innovation. Such analysis requires assessing the scope of potential effects, by determining which companies would be affected by the conduct, and the consequences on their competitiveness. For instance, in *Google/Fitbit*, the Commission acknowledged that any degradation strategy would not affect Apple or third-party wrist-worn wearable devices connected to an Apple iPhone. Nevertheless, around 50% of the market for wrist-worn wearable devices would still be affected by a foreclosure strategy, and the Commission thus found that an interoperability degradation strategy would have a significant detrimental effect on competition.[31]

27. Assessing the impact of interoperability degradation also requires analysing its effect in terms of deterring entry by new players or innovation by existing competitors, in

[27] *NVidia/Mellanox*, paragraphs 228 to 242.

[28] *Broadcom/Brocade*, paragraphs 228 to 242.

[29] *Meta/Kustomer*, paragraph 385.

[30] *Google/Fitbit*, paragraphs 792 to 801.

[31] *Google/Fitbit*, paragraphs 809 to 816.

particular for digital markets that have been historically dynamic. In *Broadcom/Brocade*, for example, the Commission concluded that a foreclosure strategy would eventually deprive Brocade's only competitor (essentially) in fibre channel HBAs and the main likely target of foreclosure, Cavium, from having sufficient resources to invest in the development future generations of those products.[32] On a related note, the impact of an interoperability degradation strategy may in general be more acute in growing markets, such as the wrist-worn wearable devices segment, which was nascent and fast-growing at the time of the *Google/Fitbit* decision.[33]

3.5. Conclusion on interoperability degradation

28. The nature of the relationships at play in cases involving the interoperation of complementary products or services has allowed the Commission to frame its substantive analysis as conglomerate-type theories of harm, which often require sophisticated factual and economic assessment, as the Commission's decision practice has shown.

4. Vertical Relationships: Access Degradation

4.1. Overview of the Commission's decisional practice

29. In reviewing digital and tech mergers, the Commission has assessed access degradation theories of harm where, as is common in this sector, products or services provided by one player rely strongly on access to other products or services as inputs.

30. Where one of the merging parties has market power in relation to a sufficiently important input,[34] the merger may bring about a change in incentives, namely to favour the merged entity's own downstream operations compared to third parties and to stop making the input available to third parties, i.e. total input foreclosure. Such conduct could make it more difficult for rivals to compete on an equal footing with the merged entity and in turn have a negative impact on competition overall.

31. Unlike in traditional 'physical' markets, the relevant input in digital and tech cases may be a particular technology or software application, e.g. IP or technology (e.g., *Nvidia/Arm*)[35], operating system (e.g., *Microsoft/LinkedIn*)[36] or messaging application (e.g., *Meta/Kustomer*)[37], and access can be provided virtually, e.g. via an API or licence of the intellectual property rights relating to the technology. This also means that considerations around scarcity, capacity limitations or availability that may be important in the case of physical inputs may be less relevant where the input is a licence to use or access a 'virtual' input.

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[32] *Broadcom/Brocade*, paragraph 205.

[33] *Google/Fitbit*, paragraph 28.

[34] See Non-Horizontal Merger Guidelines, at paragraph 34 for the definition of an 'important input'.

[35] Case M.9987 – *Nvidia/Arm* (2022). Following the Phase 1 investigation, the Commission was concerned that the merged entity would have the ability to restrict or degrade access of providers of processors (competing with Nvidia) to Arm's technology. See ec.europa.eu/commission/presscorner/detail/en/IP_21_5624. The case was later withdrawn.

[36] Case M.8124 - *Microsoft/LinkedIn* (2016).

[37] Case M.10262, *Meta (formerly Facebook)/Kustomer* (2022).

32. In recent merger cases notified to the Commission, the most common theory of harm related to access degradation has been input foreclosure, with customer foreclosure also arising albeit less frequently. As in interoperability degradation described above, the Commission assesses input foreclosure by using a three-prong test analysing the Parties' ability and incentives to foreclose, as well as the foreclosure's competitive impact.

4.2. The ability to foreclose by degrading access

33. In digital and tech mergers, the technical means of engaging in input foreclosure may raise specific nuances in view of the type of input and how access is given pre-transaction. For example, in both *Meta/Kustomer* and *Google/Fitbi*t, uniform access was given to all downstream players pre-transaction, and Meta and Google had no reason to prefer a particular downstream player over another as they had little or no own operations in the relevant downstream markets (i.e., the CRM and the nascent digital healthcare markets respectively).

34. In those cases, the Commission examined how, in practice, the merged entity could give its own downstream operations sole or preferential access to the input, and exclude or degrade the access of third parties post-transaction. Internal documents and past behaviour by the acquirer or by other similarly-placed players can provide supporting evidence in this regard.[38]

35. In assessing possible foreclosure strategies, the Commission will generally first examine whether total foreclosure is possible, i.e. removing access to the input or API, and, second, whether more subtle forms of foreclosure, such as limiting or degrading the level of access in a manner sufficient to create a competitive advantage for the merged entity. The Commission does not necessarily need to conclude on whether one particular foreclosure strategy may be more likely than another.[39]

36. Finally, when assessing the ability to foreclose, the Commission assesses whether there are counterstrategies available to downstream rivals. These strategies may vary depending on the factual circumstances of each case. For instance, in *Meta/Kustomer* the Commission investigated the credibility of "workarounds" in case Meta refused access to its messaging channel APIs, e.g. regaining access via some other (indirect) means.[40] In *Microsoft/LinkedIn*, the Commission assessed whether LinkedIn's rival professional social networks could turn to alternative productivity software suites with similar user penetration, in case Microsoft refused access to its Outlook API or other APIs.[41] In both cases, however, the Commission considered that these strategies were either not credible, or would not suffice to constrain the merged entity's foreclosure strategy.

4.3. The incentive to foreclose by degrading access

37. An assessment of the incentives to engage in access degradation can differ greatly depending on the type of strategy. For example, a market-wide refusal of access to the relevant input or APIs is the most far-reaching and clear-cut strategy, while degrading or granting inferior access to a sub-set of access seekers, such as close competitors of the

[38] See, for example, *Meta/Kustomer*, paragraphs 283 and following.

[39] For example, *Google/Fitbit*, paragraphs 521 to 525; *Meta/Kustomer*, paragraphs 282 to 293.

[40] *Meta/Kustomer*, paragraphs 298 to 302.

[41] *Microsoft/LinkedIn*, paragraph 329.

merged entity is more subtle. Each strategy variation may thus involve a different balancing of the relative gains and losses.

38. Additionally, the incentives assessment may need to account for gains and losses that are exceedingly difficult to quantify precisely. For example the value of data, cross-selling opportunities or potential network effects, can be impossible to quantify, in particular if the relevant input is provided for free, as is the case with many products in the digital and tech sector.[42] Target valuation models and revenue projections prepared by the acquirer and its financial advisers can sometimes assist in assessing the incentives to engage in an access degradation foreclosure strategy, but it may also be necessary to factor in a qualitative assessment of gains and losses.

39. The Commission recently engaged in such balancing assessments in *Google/Fitbit* and *Meta/Kustomer*. A qualitative balancing exercise was carried out in relation to access degradation of the Fitbit Web API in *Google/Fitbit*.[43] In *Meta/Kustomer*, the Commission carried out a combined qualitative and quantitative assessment of Meta's incentive to foreclose. A qualitative assessment was necessary in order to take into account certain unquantifiable gains, such as additional data for online ads purposes[44] and in parallel the Commission carried out a quantitative assessment of only the quantifiable gains and losses.[45]

4.4. The competitive impact of foreclosure by degrading access

40. Finally, it is necessary to check if the access degradation strategy is likely to result in a significant negative effect on competition. Such a finding is only likely if the targets of foreclosure play a sufficiently important role in the competitive process on the downstream market. The higher the proportion of rivals which would be foreclosed, the more likely the merger can be expected to have a significant negative effect on competition in the downstream market. This could be as a result of a price increase, a degradation in quality or a reduction in choice or innovation, which is particularly relevant in certain digital and tech markets where price may not play an important role.,[46].Even a foreclosure strategy that is targeted at a sub-set of players in the downstream market can have a detrimental effect on competition in certain circumstances.[47]

4.5. Conclusion on access degradation

41. In a context where large digital and tech firms may have significant market power or dominant positions in certain markets, it is necessary for competition enforcers to be particularly vigilant where such firms acquire companies, even nascent or 'start-up' companies, whose offerings may constitute an important input for a market where the acquiring firm already has market power. The inverse may also be the case; the acquiring firm's offering may constitute an important input in the market where the target firm is active. In order to ensure that rivals can continue to have the same level of access to such

[42] And as was the case in *Google/Fitbit* and *Meta/Kustomer*.

[43] *Google/Fitbit*, paragraphs 521 – 525.

[44] *Meta/Kustomer*, paragraphs 309 -310.

[45] *Meta/Kustomer*, paragraphs 315 and 389.

[46] For example, see *Microsoft/LinkedIn*, paragraph 351.

[47] For example, see *Meta/Kustomer*, paragraphs 444 and following.

important inputs, the Commission is increasingly investigating access degradation theories of harm in its decisional practice on digital mergers.

5. Data Related Effects

42. With the emergence of data as a key input into many online services, the ability to access and use data has become an important element in merger control. Data can be classified according to various characteristics, for example, data can be personal or non-personal (and thereby subject to different regulatory regimes); data can be collected, volunteered, inferred or observed; data can be traded or non-traded. All of these and other factors may be relevant for the competitive assessment.

5.1. Overview of the Commission's decisional practice

43. Broadly, there are three main ways in which data may come into play in the competition law assessment: (i) as an important input; (ii) as a competitive product or (iii) data privacy settings as a non-price parameter of competition. These data-related issues also overlap with the competition law assessment of interoperability, privacy, network effects, ecosystems, data portability that may be necessary for multi-homing, or data migration-related issues that may raise switching costs.[48]

44. In most merger cases to date, data related issues were assessed in the framework of potential horizontal non-coordinated effects. Within the horizontal assessment framework, multiple elements may be assessed related to data. In markets where data is an important part of a product or service, a potential accumulation of data (combination of data sets) as a result of a merger are assessed.[49]

45. First, the combination of two datasets may increase the merged entity's market power in a hypothetical market for the supply of this data post-merger. In this scenario, data aggregation strengthens the market power of the merged entity in a market for providing products or services for which data is valuable. Such dataset combination may also increase barriers to entry/expansion in the market for actual or potential competitors, which may need this data to operate on this market. Competitors may indeed be required to collect a larger dataset in order to compete effectively with the merged entity than absent the merger.

46. Second, even if there is no intention or technical possibility to combine the two datasets, it may be that pre-merger the two companies were competing with each other on the basis of the data they controlled (or for example privacy settings they had for the relevant data) and this competition would be eliminated by the transaction.

47. Data issues were also examined as a vertical effects, where data as an input may increase market power in a related downstream or upstream market, potentially also raising barriers to entry for other players that may not have access to such data.

48. Lastly, regulatory and data privacy rules also play a role in the relevant assessments.

[48] Case M.4731 - *Google/DoubleClick* (2008).

[49] Paragraph 36 of the Horizontal Merger Guidelines.

5.2. Data and horizontal effects

49. The decisional practice distinguishes data that is traded from data that is not traded. To the extent that a merger would lead to horizontal overlaps on data markets, the starting point would normally be an assessment of market shares and the availability of alternative data sources.

50. In this context, the availability of data played a determinative role in *Google/Fitbit* and *Meta/Kustomer*. In *Google/Fitbit* the Commission found that Fitbit's data could be used to build user profiles that could improve Google's tailoring of the ads (i.e. strengthening its dominant position in the online search advertising market). The Commission found that Fitbit's health and wellness data was not available to competitors and that it was unlikely to become available on the market in the future. The Commission assessed whether the data combination would likely strengthen Google's market position, giving it a significant competitive advantage, resulting in an impairment of Google's rivals in the relevant markets.[50] In contrast, data related concerns were dismissed in another case, where the relevant data was readily available on the market and the acquired data set is in fact owned or controlled by the third parties – *Meta/Kustomer*.[51]

5.3. Vertical effects, data as an input

51. With respect to input (data) foreclosure (i.e., vertical non-coordinated effects), as explained in the preceding section, the Commission examines such effects by considering whether the merged entity would have the ability and incentive to engage in input foreclosure, and whether this would have an impact on competition. In terms of ability, the Commission first assesses if data could be an important input within the meaning of paragraphs 31 and 34 of the Non-Horizontal Guidelines. In this sense the Commission considers if the data is traded or could potentially be traded to third parties. Second, it considers if the merger may change the incentives of the merged entity to start monetising such data and/or use the data to improve its own services downstream. This approach was notably adopted in *Microsoft/LinkedIn*.[52]

52. Where the Commission finds ability to foreclose rivals from an important data input, in line with its framework, it will consider the incentives to foreclose. In such assessment, complex issues may arise if data is not yet traded and insufficient information is available to assess if a foreclosure strategy would be profitable. In such instances, a review of the parties' internal documents and a detailed assessment the transaction's rationale may be informative of the future incentives with respect to foreclosing rivals from accessing data.

53. Finally, the Commission assesses the overall impact of foreclosure on effective competition. In such assessment the Commission may consider if the entire market may be impacted, or only subsets thereof.[53] The Commission would also assess what exact impact a restriction to data access would have. In order for competition concerns to be warranted, rivals must be hampered in their ability to compete and innovate, or there must be a likelihood that data foreclosure would raise barriers to entry to potential competitors.

[50] *Google/Fitbit*, paragraphs 414-468.

[51] *Meta/Kustomer*, paragraphs 560-561.

[52] See *Microsoft/LinkedIn*, paragraphs 246-277.

[53] *Microsoft/LinkedIn*, paragraph 275.

5.4. Regulatory issues and data privacy rules

54. In the context of data-related competition assessments, wider regulation and in particular data protection[54] and privacy rules may be relevant when they relate to the competitive process. This may be so in two respects.

55. *First*, the Commission may examine if there are certain regulatory limitations preventing the combination of datasets. To the extent the Commission finds that the applicable data protection and privacy laws do not prevent the combination of data sets following the transaction, the Commission assesses competitive effects as a result of such a combination. Thus, in *Microsoft/LinkedIn* the Commission noted that Microsoft and LinkedIn were subject to data protection rules (including the GDPR rules) with respect to the collection, processing, storage and usage of personal data, which, subject to certain exceptions, limited their ability to process the dataset they maintain. In *Google/Fitbit* and *Meta/Kustomer*, the Commission also acknowledged that the merging parties were subject to data protection rules, which place limitations on the processing of personal data, but do not prohibit such processing. On that basis, the Commission carried out its assessment on the assumption that the Parties could lawfully combine their datasets.[55]

56. *Second*, privacy may be an important element of quality of a product/service. In such circumstances, as with other non-price factors, the Commission will assess whether the merging parties were competing on this parameter and whether the transaction results in a loss of competition in this respect.[56]

6. Ecosystems Related Effects

57. Competition in digital services increasingly occurs among a few large ecosystems. The OECD found that "digital ecosystems of complementary products and services centred around [a] core service offer a line of products and services with a technological linkage increasing the complementarity between them. Large economies of scope and scale across markets, and network effects facilitate the development of ecosystems on the supply side, while consumer[~~s~~] synergies due to technological linkages play an important role on the demand side."[57]

58. The increasing concerns around digital ecosystems relate, among other things, to (i) conditions of access and interoperability, which may afford market power to the ecosystem's owner, (ii) the negative impact on consumers and market entry of the closed functioning of competing ecosystems, and (iii) the risk that certain platforms may be able to accumulate vast amounts of data from the various components of their ecosystems.[58] Some concentrations may give rise to a combination of these issues jointly.

59. Although some of these concerns were addressed in the preceding sections, the competitive effect of the acquisition and integration of an asset via a merger, to

[54] For example, EU General Data Protection Regulation which came into force on 25 May 2018.

[55] See *Google/Fitbit*, paragraphs 402-413 and *Meta/Kustomer*, paragraphs 518-528.

[56] *Microsoft/ LinkedIn*; *Apple/Shazam*, paragraph 208.

[57] 29 October 2021 OECD Executive Summary of the Hearing on Competition Economics of Digital Ecosystems, DAF/COMP/M(2020)2/ANN6/FINAL, p. 2.

[58] See, e.g., 2019 Special Advisors Report on Competition Policy for the Digital Era, Jacques Crémer, Yves-Alexandre de Montjoye and Heike Schweitzer, p. 34.

complement, extend or reinforce an existing ecosystem may raise specific issues relevant to a merger review. Those concerns are gaining increasing relevance in the Commission's decisional practice. From a theoretical perspective, two frameworks could be considered for the assessment of a possible ecosystems-related anticompetitive effect.

60. First, ecosystems-related effects could be assessed as a conglomerate theory of harm. Indeed, a merger would typically allow the acquiring platform to add a complementary element to its ecosystem, thus raising the concern that it may be able to leverage market power in its core market into the newly acquired product or service. The presence of an ecosystem may add a layer of complexity to such a theory, in the sense that there may not be a direct link between the platform's core market and the acquired activity, such that leveraging market power may only occur via sophisticated forms of bundling or tying. For instance, a digital ecosystem may be able to leverage market power across interlinked complementary products or services in indirect ways that have not yet been considered in the Commission's decisional practice, or in the Commission's Non-Horizontal Merger Guidelines.

61. Novelty notwithstanding, there is no fundamental impediment to finding such conglomerate risks. The applicable legal standard, as defined by the case law, is that "[s]*ince the effects of a conglomerate-type merger are generally considered to be neutral, or even beneficial, for competition on the markets concerned (…) the proof of anti-competitive conglomerate effects of such a merger calls for a precise examination, supported by convincing evidence, of the circumstances which allegedly produce those effects*".[59] The Commission is therefore bound to demonstrate the likelihood of anticompetitive effects to the requisite legal standard. The Commission recently assessed such possible effects in case M.10349 *Amazon/MGM*, examining the competitive impact of adding MGM's content to Amazon's existing bundle of audio-visual services and marketplace service products. The Commission ultimately dismissed competition concerns, finding that Amazon lacked market power in video-on-demand subscription services, and that MGM's content was unlikely to significantly increase Amazon's Prime Video position.

62. Second, ecosystem-related effects can also lead to horizontal concerns, such as strengthening of a dominant position or removal of a potential competitor. Enlarging the ecosystem by an acquisition may lead to the creation or the strengthening of a company's dominant position in one "core" market (or more), raising barriers to entry or expansion for rivals,[60] and in turn further lock customers in or incentivise them to remain within its so-called "walled garden" of services. For example, as outlined above, in *Meta/Kustomer* the Commission concluded that Meta would have the incentive to engage in input foreclosure, including because of the benefits from steering businesses into its ecosystem of products. In that regard, Meta's presence across multiple markets was an important element in the Commission's finding of a competition concern in *Meta/Kustomer*.[61]

63. Ecosystem-related concerns may also arise in circumstances where the acquiring firm previously contemplated expanding its ecosystem by building a product in-house rather than buying the target. If the acquiring firm was planning to enter the target's market

[59] Court of First Instance judgment of 25 October 2002 in case T_05/02, *Tetra Laval v Commission*, at 155 (confirmed in Court of Justice judgment of 15 February 2005 in case C-12/03 P, *Commission v Tetra Laval*, at 45; Court of First Instance judgment of 14 December 2005 in case T-210/01, *General Electric v Commission*, at 69 and 76.

[60] See Commission Horizontal Merger Guidelines, paragraph 36.

[61] *Meta/Kustomer*, paragraphs 315 and 389.

organically, but now enters by acquiring the target, the transaction would eliminate a future competitor - namely the acquirer itself – potentially leading to horizontal competition concerns.[62] This could occur in particular where the target is a leading player in its market. In *Google/Fitbit*, the Commission assessed whether Google had plans to enter the market for smart watches organically, but dismissed horizontal effects from the elimination of a potential competitor because of the large number of alternative providers of smart watches.[63]

7. Conclusion

64. Digital and tech mergers have disrupted markets and business practices to such an extent that they have stress-tested merger control regimes, in more ways than one. At the present point in time, the EU framework of review is proving resilient and flexible. Based on this framework, the Commission conducts a fact-based and case-specific assessment, resulting in (sometimes novel) theories of harm which fit the economic reality of the relevant markets. As the industry consolidates and the Commission reviews more concentrations, the scrutiny of transactions in the digital and tech space intensifies. This results in increased interventions by the Commission, via remedies or in-depth investigations.

65. Finally, a new legislative environment dawns with the entry into force of the DMA. Designated gatekeepers will be subject to specific rules, including with respect to interoperability or data use. This regulatory shift may impact the Commission's review of concentrations involving gatekeepers, adding a novel element to factor in the competitive assessment of such transactions.

[62] See Commission Horizontal Merger Guidelines, paragraph 60.

[63] See *Google/Fitbit*, paragraph 396.