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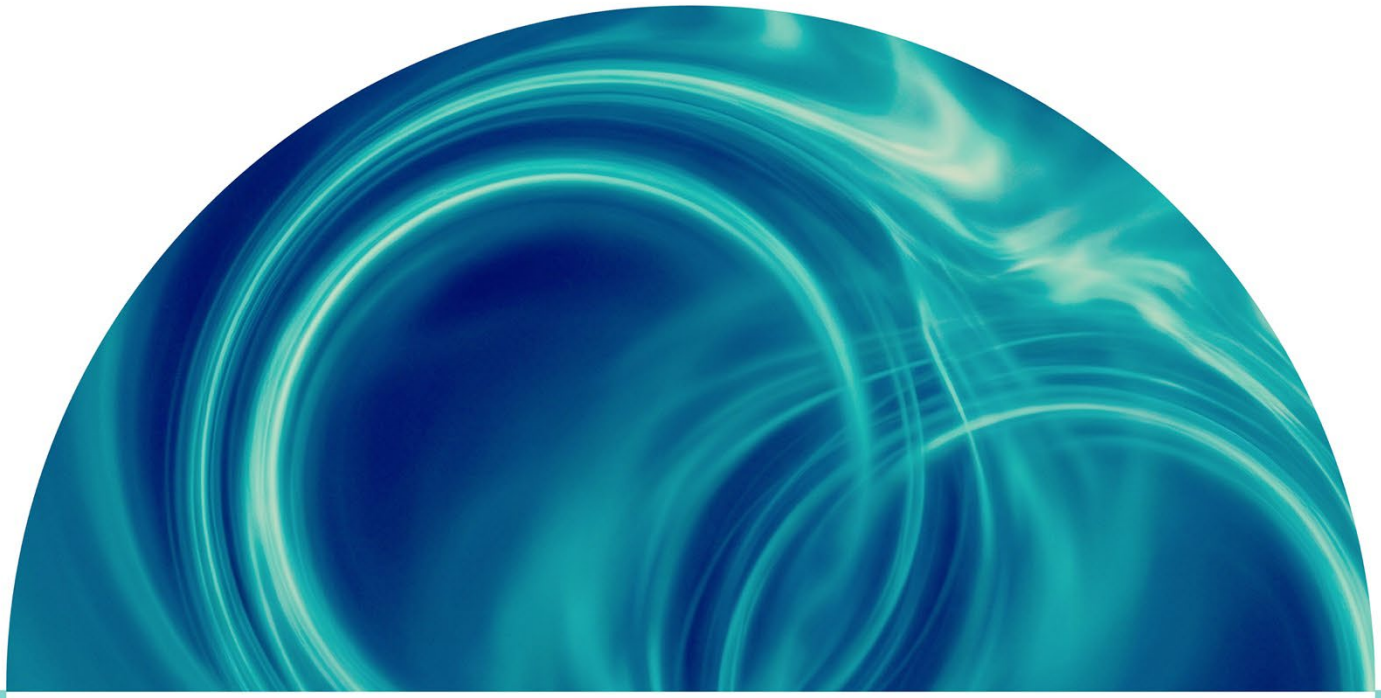

A Dynamic Framework for the Assessment of Horizontal Mergers

Report commissioned by GSMA, with support from Connect Europe

January 2026

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Acknowledgements

This report would not have been possible without the invaluable contributions of our colleagues. Francisco Espinosa coordinated the work and provided critical analytical insights. Magdalena Kuyterink contributed key insights on the dynamic competition framework, Maelle Laborde played a central role in the literature review and drafting of the policy proposal and Daniel Pate worked on the telecommunications sector literature review and case study. We also acknowledge valuable research assistance provided by Gabriele Bertuzzi, Hugo Canau, Nathan Jimenez and Arianna Savo.

The report builds on earlier work of the authors with Aleksandra Boutin on pro-competitive mergers and the role of the significant impediment to effective competition test in this context, which formed an important foundation for this study.

The authors are also extremely grateful for comments and insights from David Teece and from TSE researchers Matthieu Bouvard, Bruno Jullien and Patrick Rey. The discussions with researchers from TSE took place as part of the collaborative partnership between TSE and Orange. These exchanges focused on analysing existing academic work, identifying key insights and ensuring that the review aligns with the objectives of the joint research program and latest academic research. The dialogue also helped clarify methodological approaches and highlight areas where further investigation could strengthen the overall study.

This report has been commissioned by GSMA, with support from Connect Europe.

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A Dynamic framework for the assessment of horizontal mergers
Report Foreword – Vivek Badrinath

Europe stands at a pivotal moment. Our digital future will be defined not only by the technologies we build, but by the policy frameworks that enable companies to innovate, and scale to invest.

For years, evidence has shown that in certain sectors characterised by capital intensity and long payback cycles, the attainment of scale can unlock meaningful benefits for consumers and add to the resilience of Europe's wider digital economy. Yet competition authorities have remained cautious, relying on traditional, static models of analysis that focus narrowly on short term price effects. The challenge is that we no longer operate in a static world.

Today's markets, especially fast moving, high investment ones like telecoms and life sciences, demand a broader, more forward-looking approach. Assessing competition cannot stop at headline prices or market shares. It must also consider how companies innovate, build new capabilities, and adapt in real time to better serve customers. These dynamic effects begin on the supply side, but they ultimately shape what matters most: quality, choice, innovation, and, in many cases, more efficient and sustainable pricing.

To support the European Commission's review of its merger guidelines, the GSMA, with support from Connect Europe, commissioned this report to propose 'A Dynamic Framework for the Assessment of Horizontal Mergers'.

The report offers a modern, evidence-based path forward, rooted in standard economic theory. It presents a balanced methodology that incorporates both short- and long- term impacts, recognises the value of dynamic rivalry, and evaluates pro and anticompetitive effects with equal rigour.

Crucially, it challenges the outdated assumption that consolidation is inherently harmful. Instead, it demonstrates that in many circumstances, mergers can help Europe strengthen its competitive position – accelerating innovation, improving service quality, and enabling the scale required for sustained investment in next-generation networks.

These insights extend well beyond telecoms. They speak directly to Europe's broader ambition to remain competitive on the global stage, to create an environment where companies can grow, innovate, invest and lead.

The GSMA is proud to contribute to this important conversation, and I hope this report encourages a constructive and informed dialogue among policymakers, regulators, industry leaders, and the wider ecosystem. Aligning regulatory frameworks with the realities of modern competition and business models is essential if we are to deliver the networks, services, and innovations that Europe's citizens and businesses deserve.

Vivek Badrinath

Director General, GSMA

From the political and strategic objectives to the economic practice
Report Foreword – Alessandro Gropelli

Connect Europe represents 40 members and observers who – day in, day out – build Europe's digital infrastructure: fibre networks reaching the homes of hundreds of millions of Europeans; 5G and future 6G networks to provide smart connectivity everywhere; sovereign cloud and AI data capacity to empower the Continent's industrial base. Europe does have an existential need for increased investment, especially in strategic sectors and infrastructures, ranging from defence to tech, from energy to airlines and many more.

This is why telecoms, just like many other sectors that are critical to the future competitiveness of the Continent, can relate so well to the view of European Commission President von der Leyen on mergers. As she wrote in the Mission Letter issued at the beginning of the new Commission mandate, the new EU Merger Guidelines "should give adequate weight to the European economy's more acute needs in respect of resilience, efficiency and innovation, the time horizons and investment intensity of competition in certain strategic sectors, and the changed defence and security environment".

When we implement this approach—which builds on Mario Draghi's Competitiveness report—it will turn into a very powerful response to the current geopolitical environment and lay the ground for better socio-economic conditions for our citizens.

We do share the view of Executive Vice-President Ribera and of DG Competition that such reform cannot be solely grounded in political and strategic objectives, but should also be informed by thorough economic analysis. This is why we have eagerly worked on this study together with the GSMA. We believe it now provides a solid and credible framework to inspire merger reviews that make European citizens and economies stronger, not weaker.

Alessandro Gropelli

Director General, Connect Europe

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Executive Summary

Firms compete not only on prices or quantities but also along longer-run dimensions such as entry and exit, product differentiation, investment in capacity and quality, and development of new technologies, products and services. These more dynamic decisions matter across both high-tech and traditional industries. As a result, mergers can affect consumer welfare through both short-run price effects and changes in firms' ability and incentives to invest, innovate and reposition over time. Assessing such dynamic competition requires analysing both demand- and supply-side conditions, including investment drivers and strategic constraints.

As markets become more complex and dynamic, policymakers, academics and stakeholders hold a broad consensus that merger control must keep pace with these changes to fully account for dynamic competition. Merger control should not remain anchored in static concepts focused on prices and market shares that risk overstating harm in some cases and understating in others.

The European Commission (the "Commission") is currently revising its Horizontal Merger Guidelines ("HMG"). With this report, we offer a conceptual framework to support the Commission in that regulatory modernisation.

The central concern we identify is not that the Commission uses inappropriate economic tools or systematically ignores relevant variables. Rather, the issue lies in how these elements are integrated and weighted within the current analytical framework. We identify four main problems.

1. **Short-term bias and risk aversion.** The current approach tends to prioritise highly certain, short-run effects while discounting longer-term, inherently more uncertain but often central dynamic effects such as those on investment or market positioning.

2. **De facto presumption of harm.** The Commission's current approach implicitly assumes that mergers are more likely to harm than strengthen competition, an assumption largely rooted in a static, price-focused perspective. However, the broader economic literature does not support this view.

3. **Asymmetric standards.** Anti-competitive effects are assessed within the core significant impediment to effective competition ("SIEC") analysis under a "more-likely-than-not" standard. By contrast, pro-competitive effects are assessed under stricter standards within the efficiencies framework. We argue that there is no sound basis for this asymmetry where both risks and benefits are uncertain and derived from the same economic principles.

4. **Sequencing.** Entry, buyer power and efficiencies are treated as offsets to an already-formed theory of harm, rather than shaping the assessment from the start. This sequencing is particularly problematic when relevant factors that shape competition cannot be easily translated into short-run price effects.

Together, these features risk overestimating harm, underestimating dynamic benefits and deterring welfare-enhancing mergers.

To address these concerns and as a constructive contribution to the HMG discussion, we propose a unified approach that evaluates adverse and positive effects together within the SIEC framework. Such an approach requires a clear distinction between strategic effects and efficiencies. **Strategic effects**, on the one hand, are changes in the merging parties' *behaviour* across relevant competitive dimensions (price, quantity, quality, entry, innovation, etc.). These can be both pro- or anti-competitive. **Efficiencies**, on the other hand, are merger-induced changes to underlying *economic conditions* (such as costs, financing, productivity or capabilities). Once established as verifiable and merger-specific, the effects of efficiencies on the merging parties' competitive behaviour constitute *indirect* strategic effects and, as such, must become part of the strategic-effects assessment.

In our framework, pro-competitive strategic effects that stem directly from the change in ownership are not treated as efficiencies but are assessed within the core SIEC analysis on an equal footing with anti-competitive effects. We propose an assessment framework for the Commission organised around the following steps.

Step 1 – Identify the relevant dimensions of competition. Determine which dimensions of competition drive consumer welfare in the case at hand (price, quality, entry, investment) and the market characteristics around them. Non-price dimensions should be considered from the outset, not treated as countervailing factors.

Step 2.a – Formulate and assess dimension-specific theories of competitive effects. For each relevant dimension, articulate a theory of *competitive effects* (and not only *harm*) grounded in economic theory and supported by case-specific evidence (including the merger rationale). This step focuses on the assessment of strategic effects and should be symmetric: positive and negative strategic effects should be evaluated together within a unified SIEC assessment.

Step 2.b – Consider potential efficiencies. Efficiencies should be treated as merger-induced changes in the merging parties' economic conditions (those related to their production and investment costs, technologies, financing conditions and organisational capabilities) which generate indirect strategic effects along dimensions identified in Step 1. This clarifies what belongs in the "efficiencies box" and ensures that the behavioural implications of efficiencies are integrated into the competitive assessment rather than treated as a separate balancing exercise.

Steps 2.a and 2.b should not be understood as strictly sequential. The assessment of strategic effects (both direct and indirect) is iterative and should be refined as additional evidence becomes available, including substantiated efficiencies where relevant.

Our proposed approach directly addresses the four problems that we have identified with the current assessment framework. By requiring the Commission to identify all relevant dimensions of competition and develop dimension-specific theories of competitive effects, it reduces the bias towards prices and short-run effects. By integrating pro- and anti-competitive strategic effects within a single SIEC assessment, it removes the asymmetric treatment of risks and benefits and ensures that the analysis does not rest on an implicit presumption that mergers are harmful by default. The framework also corrects the sequencing problem. Entry, buyer power, investment and

other dynamic factors are brought into the analysis from the outset instead of being considered only as late-stage "countervailing" arguments.

We illustrate the application of the proposed structured approach in three settings where the current framework presents limitations:

- **Local markets:** Diversion and consumer switching, not simple presence-based metrics, should drive analysis; entry and relocation dynamics matter.
- **Telecommunications:** Mergers can improve investment incentives and accelerate network upgrades; both short-run price and long-run quality effects must be assessed.
- **Life sciences:** Innovation outcomes depend on mechanisms such as duplication, complementarities, risk and financing; by combining research and development efforts, mergers can improve innovation outcomes. There should therefore be no presumption that consolidation reduces welfare-enhancing innovation.

A modernised approach to merger control should integrate positive and negative strategic effects symmetrically into a unified, evidence-based SIEC analysis. By identifying relevant competitive dimensions, articulating dimension-specific theories of competitive effects and distinguishing efficiencies from strategic effects, merger control can better address dynamic competition without changing legal standards or reducing procedural efficiency.

1 Introduction

1. Economic theory and competition policy have identified multiple ways in which firms compete in different markets. In some industries, rivalry takes place in the form of price-based competition, with short-run outcomes being the main drivers of consumer welfare. In others, firms compete primarily along longer-run or innovation-related variables: entry and exit; product differentiation; investment in capacity and quality; and development of new technologies, products and services. These variables are not confined to high-tech sectors: investment—for example, in capacity expansion or cost reduction—also shapes outcomes in commodities and basic industries.

2. In such settings, mergers may affect consumer welfare by not only changing short-term prices but also altering the merging parties' ability or incentives to invest, innovate, improve and reposition products or expand over time. In many cases, these changes in strategic incentives may be the primary effect of the merger on consumer welfare. Identifying the relevant variables along which firms compete requires not only an understanding of customer preferences and substitution patterns but also careful analysis of supply-side conditions, including investment incentives, capabilities and the market forces that shape firms' strategic choices.

3. Markets are becoming more complex and dynamic, and policymakers, academics and stakeholders hold a broad consensus that merger control must keep pace with these changes to fully capture dynamic competition—that is, competition that occurs through investment, repositioning, innovation and capability building. Dynamic competition matters not only for consumer welfare directly but also for the productivity and competitiveness of Europe as a whole.

4. Merger control should not remain anchored in static concepts centred on prices, market shares and other short-run outcomes. These concepts are often insufficient to assess merger effects on dynamic dimensions of competition, and risk overstating the competitive harm of consolidation in some cases and understating it in others.

5. In line with this view, the European Commission's (the "Commission") *Competitiveness Compass* identifies enhancing productivity and competitiveness as key priorities and emphasises that "*in the global race to develop deep technologies and breakthrough innovations, competition policy must keep pace with evolving markets and tech innovation. This needs a fresh approach, better geared to common goals and allowing companies to scale up in global markets – while always ensuring a level playing field in the Single Market*".[1] Merger control plays an essential role in promoting incentives for firms to invest, innovate and grow by safeguarding both productive and dynamic efficiency.

6. Consequently, the Commission is currently revising its Horizontal and Non-Horizontal Merger Guidelines to ensure that merger control remains fit for purpose in a changing environment. It has launched a public consultation to update its framework in light of major structural changes in the economy (digitalisation, globalisation, decarbonisation and new market realities) as well as

[1] European Commission, *Public consultation on the revision of the EU Merger Guidelines – Topic A: Competitive assessment*, para. 10, 2025.

lessons from recent decisional practice and the case law of the Court of Justice of the European Union.

7. With this report, we offer a conceptual and evidence-based framework to support the Commission in that regulatory modernisation. We focus on horizontal mergers and, more specifically, on assessment of unilateral effects. Within the Commission's consultation, our comments relate to three topics: Topic B (structural features and other indicators), Topic C (innovation and dynamic elements) and Topic F (efficiencies).[2] While our analysis is anchored in horizontal merger control, many observations also apply to cases involving ecosystems, digital business models and innovation-driven markets, where the traditional distinction between horizontal and non-horizontal effects is increasingly blurred.

8. Importantly, the approach proposed in this report does not require amendments to the European Union ("EU") Merger Regulation and can be implemented within the existing regulatory architecture through updated guidance and enforcement practice.

Problem statement

9. The central concern we identify is not that the Commission uses inappropriate economic tools or systematically ignores relevant variables. The Commission typically considers prices, entry, investment, buyer power and efficiencies in its assessments. The issue is how these elements are integrated and weighted within the current analytical framework. In particular, we identify four features that can skew assessments in markets where competition is dynamic.

    a. First, the current framework adopts a highly risk-averse stance towards future market developments. The Commission assigns greatest weight to effects that are both highly probable and near-term while discounting longer-term and more uncertain dynamic effects, such as those related to investment, capability building, strategic repositioning or entry. This bias towards short-run outcomes is particularly problematic in sectors where consumer welfare is driven primarily by repositioning, quality improvements and the emergence of new products, technologies or business models. Uncertainty should not be a reason to disregard dynamic effects.

    b. Second, there is a *de facto* presumption that mergers are more likely to harm competition than enhance it. This presumption is rooted in a largely static framework of competitive interaction, which places primary emphasis on prices and market shares. However, this assumption is not supported by the economic literature discussing dynamic effects.

    c. Third, there is an asymmetric treatment of pro- and anti-competitive effects, especially when these effects materialise in the future rather than immediately. Potential anti-competitive effects, most notably unilateral price effects, are assessed within the core significant impediment to effective competition ("SIEC") analysis

[2] This report does not address other topics covered by the Commission's consultation, such as resilience, sustainability or broader public policy objectives. The analysis is deliberately confined to competition-related effects relevant to the assessment of horizontal mergers.

under a "more-likely-than-not" standard. By contrast, potential pro-competitive effects are typically relegated to the efficiencies stage and subjected to a more stringent cumulative three-prong test (verifiability, merger-specificity and benefit to consumers). The economic literature does not support this asymmetric treatment of risks and benefits, particularly when both types of effects are forward-looking, subject to comparable degrees of uncertainty and derived from the same economic principles and frameworks.

d. Fourth, the sequencing of the analysis, including when different elements are introduced and the evidentiary standard applied to them, further biases outcomes. In practice, the Commission does consider dynamic competition, investment incentives, entry, buyer power and efficiencies, but mainly as "countervailing factors" invoked only after a theory of harm has been built around short-run price effects. This sequencing places dynamic and strategic effects in a defensive role rather than treating them as integral components of the competitive assessment. Combined with strict standards of proof, this approach structurally downplays pro-competitive strategic effects that operate through investment, innovation, capability building and long-term market evolution. In other words, while dynamic considerations are typically part of the Commission's assessment, this is often too little, too late.

10. In combination, these features can lead to assessments that overstate harm and understate welfare gains in dynamic settings, with the risk of deterring transactions that would enhance consumer welfare over time by accelerating change and innovation, enabling efficient scaling or strengthening competitive capabilities.

Revised assessment framework

11. Our contribution is twofold. First, we argue that these structural features of the current analytical framework distort the assessment of merger effects in markets where competition is dynamic, investment-driven and forward-looking. In practice, mergers often are assessed as if the priority were to exclude any scenario in which consumer welfare might fall, while possible welfare gains are discounted, pushed to the efficiencies stage and subjected to a stricter standard of proof. The resulting decision rule operates more like one designed to minimise the risk of negative outcomes than one aimed at maximising consumer welfare over time. This approach understates the contribution of dynamic dimensions of competition and risks deterring mergers that would enhance welfare in the medium and long run by accelerating innovation, enabling efficient scaling or strengthening competitive capabilities.

12. Second, we propose a structured and operational approach for the future HMG that corrects these distortions by integrating static and dynamic as well as pro- and anti-competitive effects symmetrically and at the appropriate stage of the analysis. A central aim of the framework we propose is to give the Commission a structured way to integrate the supply-side dynamic effects into the core analysis on an equal footing with traditional, demand-side, static indicators. Importantly, the proposal does not require changes to the European Union ("EU") Merger Regulation. It can be implemented within the existing SIEC framework through updated guidance and enforcement practice.

13. The structured framework we propose hinges on a clear distinction between strategic effects and efficiencies. This distinction is essential to bring dynamic considerations into the core competitive assessment on an equal footing with short-run price effects, rather than treating them as an afterthought within an efficiency defence.

    - Strategic effects are changes in the merging parties' behaviour/strategic decisions stemming from merger-induced changes in ability or incentives along the relevant dimensions of competition:[3] prices, quantities, quality, entry and exit, differentiation and repositioning, and investment. Strategic effects can be static (e.g. along price) or dynamic (e.g. along investment); and they can be pro- or anti-competitive. The change of ownership brought by a merger induces *direct* strategic effects.

    - Efficiencies refer to changes in parameters, such as marginal, variable or fixed costs, risk premia, or technological and organisational synergies in production, sales, distribution or investment. Efficiencies affect the parties' ability and incentives to compete, thus generating further, *indirect* strategic effects.

14. In section 4, we give this distinction operational content by distinguishing between an assessment of direct strategic effects and an analysis of efficiencies (including the indirect strategic effects they generate).

15. Direct effects stem from the change in ownership itself. They are always present. Conversely, efficiencies typically depend on internal cost structures, integration plans and business choices that authorities cannot directly observe or independently verify. Therefore, their nature or even existence needs to be substantiated by the parties. Nevertheless, provided that efficiencies have been substantiated to the adequate standard, both types of strategic effects should be ultimately assessed under the same more-likely-than-not standard within the SIEC framework.

16. Our analysis and proposals are not a call for more or less intervention but for an enhanced focus on dimensions of competition that matter for consumers. This will result in better-targeted and more effective enforcement. By clarifying the distinction between positive strategic effects and efficiencies, aligning standards of proof for pro- and anti-competitive effects and bringing supply-side, dynamic dimensions of competition into the core of the SIEC assessment rather than treating them as afterthoughts, the revised HMG can improve both the accuracy and transparency of merger control. Our aim is to contribute to the development of HMG that are firmly grounded in economic theory and empirical evidence (or, in more legal terms, "economic analysis and experience"), workable in practice for both authorities and firms and more closely aligned with the ultimate objective of merger control: safeguarding competition in a way that maximises consumer welfare over the medium and long runs.

[3] By "dimensions of competition" we mean the strategic variables that firms can directly choose and compete on.

Structure of the report

17. The rest of the report is organised as follows.

18. Section 2 highlights the importance of competitive dynamics in merger control, distinguishing between static effects, which capture short-term price and output responses, and dynamic effects, which reflect firms' innovation, investment and capability-building over time. It emphasises that mergers can influence long-term consumer welfare by affecting the development and deployment of firm capabilities, innovation trajectories and strategic adaptability. A comprehensive assessment therefore must consider both current market outcomes and forward-looking effects on competition.

19. Section 3 reviews the economic literature on mergers along the main dimensions of competition, both static and dynamic. It systematically maps the strategic effects identified in the literature on prices, entry and exit, differentiation and repositioning, and the various types of investment. Our recommendations are grounded in these findings and in the conditions under which pro- and anti-competitive effects are predicted to arise according to both economic analysis and experience.

20. We divide section 4 into two parts. The first translates our observations and the insights from the economic literature into a concrete, workable vision for the future HMG. It reorganises the assessment around "theories of competitive effects" rather than only "theories of harm" and sets out a structured, implementable framework that the Commission can apply in practice. In the second part, we discuss methodological and procedural aspects of this approach.

21. The framework we propose in section 4 proceeds in a series of steps.

    - Step 1: identify the relevant dimensions of competition in the case at hand, together with market characteristics that shape them. This requires a clear understanding of both the demand side (the traditional focus of assessments, such as which product attributes matter most to customers and how they substitute between offers) and the often-underexplored supply side. The latter includes how firms can expand capacity, reposition, enter or exit, and invest over time, thus bringing the dynamic elements of competition to centre stage. We provide a list of these variables and classify them into static and dynamic. We also suggest practical ways in which the Commission can identify which dimensions are most relevant in a given case.

    - Step 2.a: formulate and assess dimension-specific theories of competitive effects, including both adverse and beneficial mechanisms. This requires analysing how the merger directly changes the parties' ability and incentives along each dimension. The Commission should consider the strategic effects that economic theory suggests are plausible in the economic and legal context of the case. In doing so, the Commission should consider the merger rationale: why the parties are merging and what changes in their conduct they expect to achieve.

- **Step 2.b:** consider potential efficiencies put forward by the parties. If established, the effects of these efficiencies would then be assessed with the framework used to assess direct strategic effects and subject to the same standard.

22. Steps 2.a and 2.b should not be understood as sequential. In practice, the assessment of both direct and indirect strategic effects is iterative. The Commission should first aim to form a preliminary view on direct strategic effects based on the absent-merger parameters and readily available evidence; and then refine that view as efficiency claims are substantiated. The Commission should also refine its assessment of both direct and indirect strategic effects as additional information becomes available later in the analysis. Where efficiencies are central to the case and can be credibly substantiated early in the process, there is no procedural reason to avoid assessing them as early as possible, including in Phase I, since they will shape the relevant strategic effects. Where evidence to establish the existence and nature of efficiencies requires longer interactions with the parties, refining the assessment of the direct strategic effects could progress faster than this of indirect effects.

23. What matters is not the formal sequencing of "Step 2.a" and "Step 2.b" but the continuous updating of the assessment of strategic effects as information accumulates so that all strategic effects—direct and indirect, static and dynamic, pro- and anti-competitive—are ultimately evaluated together, symmetrically, under the same standards, within a single, coherent SIEC analysis.

24. In section 4, we add structure and practical content to this framework by:

- providing a list and classification of dimensions of competition (static and dynamic);
- offering clear definitions of static and dynamic competition;
- setting out a precise definition of strategic effects;
- drawing a clear distinction between positive strategic effects and efficiencies;
- providing a taxonomy of investment-related effects and associated indicators to measure incentives;
- proposing general evidentiary principles, including the standard of proof for positive strategic effects; and
- outlining a structured approach for balancing different effects across dimensions, time horizons and consumer groups.

25. Section 5 illustrates how this framework can be applied in practice through three sectoral case studies: local markets/retail, telecoms and life sciences. In each, we show how the Commission currently assesses horizontal mergers, identify where risk aversion, asymmetric standards and sequencing distort the analysis of effects, and demonstrate how our proposed approach can be implemented using sector-specific dimensions of competition, theories of competitive effects and indicators of incentives.

- **Local markets (retail and other distance-based industries).** In local markets, seller location is a key and measurable source of differentiation. When such differentiation is significant, structural indicators are unreliable predictors of unilateral price effects, which depend instead on actual customer switching patterns rather than simple outlet counts in broad geographic areas. We argue for customer-centric evidence (such as diversion and choice data) and for integrating entry and relocation dynamics early in the analysis.

- **Telecommunications (mobile mergers).** Mobile markets involve high fixed costs, recurring technology cycles and long lags between investment and quality outcomes, trends that will intensify with 6G, network security needs and new technologies like AI. In such context, consolidation can enhance the ability and incentives to invest by reducing duplicated fixed costs and improving the economics of network upgrades, enabling faster and more profitable rollout than standalone operators could achieve. Merger assessment must consider such medium- and long-run quality and investment impacts alongside potential short-run price effects within the core SIEC assessment.

- **Life sciences.** In life sciences, competition often takes place through research and development ("R&D"), pipeline development and innovation across uncertain, long-term innovation spaces. A merger's effect on innovation is inherently ambiguous and depends on mechanisms such as duplication, complementarities, portfolio optimisation, financing constraints and risk management. We therefore argue against a blanket assumption that consolidation harms innovation (as in the so-called "innovation theory of harm"), and instead support a case-specific, mechanism-based SIEC assessment.

26. Finally, we provide in **Appendix A** additional details on the literature review discussed in section 3. **Appendix B** presents a summary table of merger cases in the telecoms sector assessed by the European Commission over the past ten years. **Appendix C** provides a list of abbreviations used throughout the report.

2 The relevance of competitive dynamics for merger control

2.1 Multiple dimensions matter

27. Multiple dimensions drive competition between firms. Demand-side elements are generally analysed by static competition, while those on the supply side are at the centre of what is often referred to as "dynamic competition". Dynamic competition captures how firms innovate, reposition and restructure in response to technological shifts, demand changes and financial constraints. These supply-side dynamics are often the rationale behind mergers and play an important role in competitive outcomes together with classical demand-side effects.

2.1.1 Static and dynamic components of competition

28. Static effects. Traditional static models take a demand-side perspective, with the supply side assumed as given and fixed. They assume a stable environment focusing on consumer preferences and strategic responses, mainly related to price and quantities. As further developed in section 3, these static models often find that mergers, which raise concentration in the market, inherently harm consumer welfare through higher prices. This is the traditional framework adopted by competition authorities, which focuses on short-run price effects.

29. Dynamic effects. Dynamic competition focuses on the supply-side, acknowledging the process through which firms continuously strive to innovate, develop capabilities and adapt to changing market conditions over time to better serve consumers. It emphasises competition through innovation, investment and strategic renewal. This dynamic competition approach is not new but builds on Schumpeter's (1942) classic insight that what truly matters for competition is: "*[…] competition from the new commodity, the new technology, the new source of supply, the new type of organization […] competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives*".

30. While dynamic competition originates on the supply side, its purpose and impact are ultimately often measured on the demand side, in the form of higher quality, greater variety and entirely new products or services. A comprehensive assessment of mergers therefore must consider how supply-side innovation translates into consumer welfare across these multiple dimensions (as we discuss in section 2.3). This has practical implications for merger control: competition authorities need to quantify consumers' valuation of quality and innovation and adopt a longer analytical timeframe to capture effects that materialise only gradually as firms invest, learn and innovate.

31. Dynamic competition is forward-looking and focuses on the mechanisms that generate long-term consumer welfare, productivity growth and industry transformation. In this view, a firm that dominates a market at one point in time may quickly lose ground if it fails to adapt or innovate. A monopoly would therefore not be defined as an entity able to set prices above marginal cost but one that can stay ahead without innovating (Teece, 2025a).

32. Dynamic competition considers the heterogeneity of firms with their competitive strengths depending on their capabilities. These capabilities relate to their ability to identify opportunities, capitalise on them through investment and strategic commitment and adapt in response to shifting market conditions (Teece, 1986, 2007; Helfat et al., 2009).

2.1.2 Integrating dynamic competition into merger analysis

33. The preceding discussion highlights that dynamic competition reshapes how we understand market power and welfare. This insight has direct implications for merger assessment. Under a dynamic competition framework, mergers should also be assessed by their impact on innovation, capability development and the evolution of future competition. From this perspective, a merger may harm competition if it eliminates a unique innovation trajectory or reduces diversity in technological approaches (Gilbert, 2006; Federico et al., 2018). Conversely, it may benefit consumers if it increases the ability or incentives to invest or combines complementary capabilities in ways that accelerate innovation, enhance adaptability or increase competitive strengths.

34. Dynamic analysis is indispensable in markets characterised by rapid technological change, substantial investment requirements or the presence of disruptive innovations (Christensen, 1997; Petit and Teece, 2021). Companies that fail to innovate and invest in a sector where value is derived from new products and services or improvement in quality risk being disrupted and could lose traction in the market, i.e. lose their customer base to more innovative incumbents or entrants (Christensen, 1997; Teece, 2025a). We discuss in more detail supply-side responses and product market repositioning in sections 2.2.3 and 3.2.

35. Consumer welfare. Both static and dynamic effects can influence consumer welfare. Their relative importance depends on the circumstances. Understanding the factors that drive consumer welfare and competition in a given industry is essential for the competitive assessment of mergers. Before analysing competitive dynamics in an industry, it is important to establish what a proper functioning market will deliver to consumers: lower prices and increased output or new products and services, or increased quality?

36. Consumer welfare may be enhanced depending on the mechanisms of competition at play. In commodity or retail markets, price and output effects typically dominate, as firms compete to offer lower prices and wider availability. In technology and digital markets, welfare gains often stem from innovation, quality improvements and user experience—for instance, faster devices, better interfaces or integrated services. In the life sciences, including pharmaceuticals, and other R&D-intensive industries consumer welfare depends primarily on the development of new or more effective products. Recognising which dimensions matter most in a given market helps identify the relevant competitive processes and determine how mergers are likely to affect consumers.

37. For example, in industries such as digital services, competition may hinge on complementarity, data access and interoperability. In pharmaceuticals, it stems from R&D pipelines and regulatory timing; and in manufacturing from process innovation and supply-chain capabilities. Recognising

these sectoral distinctions is essential to identify the true sources of consumer welfare and hence the appropriate approach to merger analysis.

38. In markets with homogenous products where competition is driven by prices, a static assessment of how a merger will affect prices in the short run is more relevant. This will primarily concern markets with mature, homogenous products or low capital constraints. In such cases, short-term prices are the main underlying determinant of consumer welfare. However, even in this context, major investments in capacity (e.g. new mines) could be a significant driver of consumer welfare.

39. Balancing the effects that a merger may have on competition and consumer welfare is essential. Static and dynamic effects can point in different directions: a merger may raise prices marginally in the short term while increasing innovation capacity substantially and strengthening future competition (OECD, 2020). Competition policy must therefore weigh potential transitory price harms against the lasting benefits of innovation and capability-building in a framework that allows assessing both in a consistent manner. Ultimately, the importance lies in having a correct understanding of competition and applying appropriate economic tools: static analysis may be suitable for slow-moving, mature markets, but a dynamic framework is indispensable in innovation-driven and rapidly evolving industries (Jenny, 2021).

2.2 Firms as capability-building and enhancing organisations

40. Three main supply-side elements drive firms' behaviour on the market: firms' decisions do not emerge from a straightforward process (section 2.2.1); capabilities matter for competitive outcomes (section 2.2.2); and mergers can shape business model innovation (section 2.2.3).

2.2.1 Business decisions are not straightforward processes

41. Firms operate in environments where future market conditions, technological breakthroughs and consumer preferences are difficult to predict with precision. Their strategies are therefore contingent, adaptive and often shaped by historical trajectories and organisational routines (Helfat et al., 2009; Teece, 2025a). This inherent uncertainty explains why static, equilibrium-based models can capture only part of the competitive process. Much of competition unfolds through firms' ongoing adaptation and learning—the very source of dynamic effects discussed above.

42. What ultimately matters is not only a firm's initial resource endowment but how those resources are deployed, recombined and transformed in response to shifting conditions. Firms that succeed can renew capabilities and restructure operations in ways that allow them to seize emerging opportunities and withstand competitive shocks.

43. This perspective highlights that firms are not interchangeable "black boxes". As Penrose (1959) emphasised, the growth of firms depends on their ability to deploy and recombine resources productively. Building on this, Teece and colleagues (1997; 2014) underline the centrality of dynamic capabilities (i.e. the processes through which firms build, integrate and transform competencies to address rapidly changing environments).

2.2.2 Capabilities matter for competitive outcomes

44. Whether and how firms respond to market shifts depend on the firms' underlying capabilities. The capability framework focuses on processes and capacities through which firms deploy, renew and transform their resource base over time. It highlights that not all capabilities are of equal strategic importance: some allow firms to operate efficiently within existing markets and respond to disruption, while others enable them to reshape industries or create new demand (Teece, 2007; 2014). Crucially, only firms that develop dynamic capabilities—the ability to purposefully adapt and innovate—can sustain long-term competitive advantage.

45. Capability theory thus distinguishes among levels of capabilities, with dynamic capabilities being the most critical for long-term success (Helfat et al., 2009):

- Ordinary capabilities refer to the ability to "do things right". They pertain to the current operations of an organisation, encompassing the standardised routines, processes and practices that ensure efficiency in production, distribution and other day-to-day functions (Helfat et al., 2009).
- Superordinary capabilities refer to the ability to "do things better". These capture instances where firms develop superior expertise, specialised assets or operational excellence that allows them to outperform rivals within the existing technological paradigm. However, these capabilities are limited in their adaptability, as they are often tied to prevailing models of competition and may lose relevance in the face of disruption (Teece, 2025a).
- Dynamic capabilities refer to the ability to "do the right things". Defined as the capacity of an organisation to purposefully create, extend or modify its resource base, dynamic capabilities enable firms to sense opportunities, seize them through investment and commitment and transform organisational structures to remain competitive under shifting technological and market conditions (Teece, 2007).

46. The distinction between types of capabilities underscores why firms with strong operational competence or even superior assets may still fail when confronted with disruptive change, while those with dynamic capabilities can not only survive but thrive (Helfat et al., 2009). Firms with stronger capabilities can experiment more effectively and pursue ambitious investments, knowing they can adapt if conditions change. Capabilities thus form the channel linking investment and successful innovation (Winter, 2003; Teece, 2025a). In merger analysis, this means that combinations of firms with complementary capabilities can generate dynamic efficiencies that outweigh potential short-term price increases—provided the integration strengthens, rather than weakens, their collective adaptive capacity.

47. Investment decisions depend on confidence in absorptive capacity and the ability to profit from innovation (Teece, 1986). Absorptive capacity refers to a firm's ability to recognise the value of new external knowledge, assimilate it and apply it commercially (Cohen and Levinthal, 1990). It reflects not only prior investments in R&D and human capital, but also the organisational routines that enable knowledge to be integrated and redeployed effectively (Zahra and George, 2002).

Indicators such as R&D intensity, patent portfolios, capability maps and scientific expertise provide signals of a firm's potential to leverage its absorptive capacity, enter adjacent markets or develop disruptive innovations (Cockburn et al., 2000; Ahuja and Katila, 2001). Firms will not commit substantial resources to risky or uncertain ventures unless they believe they possess the managerial, organisational and complementary assets necessary to both absorb external knowledge and appropriate returns from innovation (Teece, 1986, 2007). Capabilities thus condition not only the likelihood of investment but also the scale and ambition of strategic commitments; such capabilities can be analysed via capability maps (Boa et al., 2023).

2.2.3 Mergers as engines for business model innovation

48. Mergers are not merely structural changes that alter concentration levels: they are potential engines of renewal in dynamic markets. By combining complementary resources and capabilities, mergers can enable firms to innovate, scale and adapt in ways often unattainable through contracts, alliances or organic growth alone (see section 3.3). In this sense, mergers can *create* competition, not just eliminate it, by generating new or stronger rivals, accelerating technological diffusion and improving outcomes for consumers.

49. Within this evolutionary process, business model innovation serves as a strategic expression of dynamic capabilities. Through such processes, dynamic effects materialise in practice, shaping long-term consumer welfare even when short-term outcomes appear neutral or adverse under static metrics. Mergers can catalyse this renewal by allowing firms to rethink how they create, deliver and capture value, for example, through new technologies, novel production models or reconfigured supply chains.

50. Mergers often provide a mechanism for firms to overcome internal constraints that hinder innovation. When legacy structures, rigid hierarchies or path-dependent incentives limit internal adaptation, external integration allows access to novel knowledge bases, co-specialised assets or alternative organisational logics (Christensen, 1997; Jacobides et al., 2018). Conversely, startups and smaller firms often possess distinctive technological or creative capabilities but lack complementary assets, such as distribution networks, brand capital or regulatory expertise, to bring innovations to scale (Teece, 1986; Cohen and Levinthal, 1990). Integration with an incumbent can therefore enable faster commercialisation and broader diffusion of innovation, strengthening competition in the long run.

51. Incumbents can use integration to overcome inertia, renew their capabilities and manage uncertainty through experimentation and portfolio diversification. Dynamic capabilities allow them to deploy real-options logic, pursuing multiple innovation trajectories while limiting exposure to irreversible commitments.

52. Startups and new entrants, while highly agile and experimental, often face scaling constraints. Integration can accelerate their learning curve by granting access to complementary assets, established learning infrastructures, a customer base or capital, provided that tacit knowledge is preserved and assimilation carefully managed.

53. By combining complementary capabilities, firms can achieve innovation and scale effects that invigorate markets and deliver new consumer benefits. For instance, Disney's acquisition of Pixar in 2006 revitalised the animation industry by fusing Disney's global distribution and brand power with Pixar's creative and technical excellence, producing a wave of new films and technologies that raised quality and variety for consumers (Alcacer, 2009). The 2020 merger between T-Mobile and Sprint in the United States enabled the creation of a stronger third competitor in mobile telecommunications, accelerating the rollout of nationwide 5G networks and intensifying rivalry with AT&T and Verizon (Fruits et al., 2024). In pharmaceuticals, acquisitions and research collaborations have allowed firms to combine pipelines and scientific expertise, bringing breakthrough therapies to market more rapidly than independent development would have allowed, boosting R&D productivity by 1.83 times in the three years following major mergers (Ringel and Choy, 2017). Together, these examples show that well-designed mergers can amplify competitive pressure, accelerate technological progress and ultimately enhance consumer welfare.

54. The competitive and welfare effects of such combinations depend not on size or concentration alone but on how effectively firms combine, redeploy and learn from their integrated assets. Successful mergers generate *knowledge recombination*—the integration of diverse technological, organisational and market capabilities—which enables firms to innovate and adapt to future challenges (Nelson and Winter, 1985; Teece, 2007). When these processes work, mergers can strengthen the innovative capacity of an industry and increase its resilience to disruption.

55. In the context of merger control, authorities should adopt a neutral stance towards the effects of mergers on innovation and competition. The assessment should evaluate both potential benefits and risks rather than presume that mergers inherently hinder innovation or harm consumers. For merger control, this implies that authorities should not rely on structural indicators or short-run price effects as the primary test of competitive harm. Instead, the analysis should consider whether a transaction enhances or diminishes firms' ability or incentives to innovate, build capabilities and deliver long-run consumer benefits. There should be no presumption that mergers are inherently detrimental to innovation, competition or consumer welfare. Merger assessment should therefore analyse all relevant dimensions in a symmetric and consistent manner, extending the temporal and evidentiary scope of analysis to capture effects on innovation trajectories, quality and adaptability. A balanced and evidence-based approach is essential to determine whether a merger strengthens or weakens dynamic competition and overall welfare. Mergers that strengthen the dynamic capabilities of the firms involved may, in fact, intensify competition and promote sustainable welfare gains.

2.3 Dynamic welfare to assess long-term consumer gains and market outcomes

56. Assessing welfare in this dynamic context means looking beyond short-term price effects to include long-term gains in innovation, quality and variety. Mergers that increase prices in the absence of significant quality or service effects are normally considered harmful and undesirable (see e.g. Packalen and Sen, 2013; Farrell and Shapiro, 1990).

57. While merger assessment has traditionally focused predominantly on short-term price and output effects, studies have shown that this static approach often overlooks substantial dynamic sources of consumer welfare: new products and services and quality improvements. Hausman (1996, 1997), for instance, demonstrates that new technologies such as the introduction of voice messaging services in 1990, which generated consumer gains of approximately $1.27 billion, or the development of cellular telephone services, which produced welfare gains of around $50 billion, create significant welfare improvements through enhanced quality and expanded functionality, even when prices rise.

58. These intertemporal welfare effects in the form of new products and services or quality improvements often dominate static price-based measures. Research by Hall et al. (2010) highlights that the overall welfare impact of competition depends on the relative magnitude of product-market spillovers, typically negative, as rivals' entry erodes profits; and innovation spillovers, which are often positive as firms build on each other's advances (see section 3.2). Empirical evidence suggests that social returns to R&D are roughly twice as large as private returns, underscoring the importance of accounting for innovation externalities in welfare assessment (Bloom et al., 2013) and highlighting the importance of firms' ability to profit from their innovations (Teece, 1986). Firm-level evidence from Ornaghi (2006) further supports this view, showing that both product and process innovations generate significant knowledge spillovers that amplify industry-wide productivity gains. When innovation spillovers are substantial, policies or merger evaluations that focus exclusively on static price competition risk discouraging investment.

59. A long-term perspective thus reframes consumer welfare as an *intertemporal concept*: consumers may face higher prices today but gain greater long-term benefits from innovation, quality and variety tomorrow. This broader approach aligns with the dynamic competition framework, which seeks to capture how firms' capabilities, investment incentives and learning processes translate into enduring welfare gains.

60. From a demand-side perspective, competition authorities should recognise that consumer welfare reflects not only current prices but also future quality, variety and functionality. Assessing the impact of mergers therefore requires understanding how consumers value innovation and quality improvements over time and how these preferences shape market demand. Authorities should complement traditional price-based analysis with evidence on consumer adoption patterns, switching behaviour and willingness to pay for new or improved products and services. Incorporating these dynamic determinants of consumer welfare will enable a more accurate evaluation of long-term consumer benefits.

3 Economic frameworks relevant to merger assessment: a literature review

61. When assessing the competitive effects of mergers, it is essential to consider the entire range of relevant variables through a framework that allows them to be looked at together and in a consistent manner. Traditional merger assessment has often focused on static, demand-side elements, thus limiting the analysis to consideration of price and output effects, whether unilateral or coordinated. However, modern markets, particularly those characterised by rapid technological change or high investment intensity, require a broader and more forward-looking approach that accounts for dynamic, supply-side considerations.

62. Depending on the specific market context and nature of the transaction, either supply- or demand-side effects may dominate. The economic literature sheds light on these effects and attempts to disentangle them, identifying the circumstances in which they are relevant.

63. This section provides an overview of the literature from various branches of economics that are essential for understanding the full range of merger effects. Section 3.1 presents the traditional models of static competition and highlights their limits. Section 3.2 summarises the industrial organisation ("IO") literature on mergers, with a focus on investment effects. Section 3.3 reviews the literature on firms' boundaries and capabilities. Finally, section 3.4 provides a summary of the main findings of the literature on corporate finance that are relevant to merger assessment.

3.1 Static competition: traditional paradigm and its limitations

64. A natural first stop in the review of the economic literature on merger effects is the classical theory of static competition, which has shaped decisional practice on both sides of the Atlantic for many years.

65. In these classical models, competition is reduced to a single "static" margin—firms compete either in prices (Bertrand) or quantities (Cournot), and consumer welfare can only depend on outcomes along this margin. These frameworks feature a deliberately partial representation of reality, which abstracts from other dimensions of rivalry that matter for consumer welfare, which the broader literature on merger effects (especially the one summarised in section 3.2) covers.

66. In this literature, absent significant efficiencies (i.e. marginal cost reductions) resulting from the transaction, horizontal mergers reduce competition in the market and harm consumers. This is because mergers between competitors reduce the overall competitive pressure on the firms operating in the market through two mechanisms:

    a. a merger completely eliminates the competitive pressure between the merging parties (direct effect), and

    b. the less aggressive behaviour of the merging parties reduces the competitive pressure on the non-merging firms (umbrella effect).

67. These two effects result in an unambiguous deterioration of the relevant variables of (static) competition, primarily price and quantity, but possibly also quality of the product, quality of sales and post-sales services, among others, thereby decreasing consumer welfare.

68. The two workhorse models of static competition in the literature are Cournot, in which firms compete "in quantity", and Bertrand, in which firms compete "in prices". We summarise these next.

69. In Cournot models of quantity competition (Cournot, 1838), products are homogeneous, competitors choose their production levels independently and the equilibrium price equates the quantity supplied by all firms combined with the total quantity demanded by consumers. In this setting, where there are no assets or limits to production capacities, a merger is modelled simply as the elimination of the target from the market, simply reducing by one the number of identical competitors active on the market.

70. Salant et al. (1983) show that the joint profit of the merging firms in a Cournot model decreases with the merger, except in mergers to monopoly. In this situation, the merging parties do not really have an incentive to merge in the first place and outsiders are the main beneficiaries, a result known as the "merger paradox". According to the Chicago School interpretation of this result, only mergers yielding large enough efficiency gains should be expected to occur. However, this result is an artefact of a poor modelling of the reality of mergers, where firms put assets together, and the Chicago School's interpretation does not hold.[4]

71. Later Cournot models by Perry and Porter (1985) and Farrell and Shapiro (1990) address this failure by incorporating assets into the model to capture firm size and production capacity. They find that, even in the absence of significant cost savings, mergers can still be profitable.

72. In the baseline Bertrand models of price competition, when all firms produce the same homogeneous good, competition for demand results in "price wars" with zero equilibrium profits, except for the most efficient firm when there are cost differences between competitors (Bertrand, 1883).

73. Because such extreme competition leaves little room for meaningful merger effects, the literature focused mostly on the analysis of "differentiated Bertrand" models, where firms compete in prices, but products are imperfect substitutes. In such a setting, the merger allows for price coordination between the brands of the merging parties. In this context, Deneckere and Davidson (1985) show that horizontal mergers are generally profitable for the merging parties.

74. Importantly, despite their differences, both Cournot and Bertrand models yield the same core implication for merger assessment: without meaningful cost synergies, horizontal mergers tend to raise prices. Farrell and Shapiro (1990) formalise this result further by introducing the concept of "compensating efficiencies",[5] defined as the merger-specific cost savings needed to offset the

[4] For the same reason, any modelling of « competition » based on the firm is unable to provide direct insight on the effects of mergers, as mergers are never equivalent to the mere reduction of the number of firms.

[5] In the economic literature, the term "efficiencies" generally refers to synergies, as distinct from more "basic" efficiencies such as returns to scale or reallocation of production. Synergies arise when the merger alters the firms' cost structures, for example when one party's proprietary technology or know-how allows the other to reduce its costs. By contrast, "basic" efficiencies do

merger-induced price increases. The authors find that compensating efficiencies are typically too high to be plausible in practice. Affeldt et al. (2021), among others, confirm this conclusion by analysing over 1,000 European merger cases and finding that such efficiencies are rarely observed.

75. These classical models are relevant for mergers involving homogeneous consumers and relatively homogenous goods. In such cases, simple indicators such as pre-merger market shares can proxy diversion ratios between the merging parties and are therefore relevant to signal a SIEC arising from unilateral effects.

76. However, there are circumstances in which the assumptions of the classical models fail to hold. For example, when there is high product differentiation (or, more precisely, when subgroups of products compete more closely with each other than with products outside their subgroup), the conceptual link between market shares and SIEC breaks, and no presumption about competitive effects can be drawn from market shares alone. The Commission itself acknowledges this point in its 2024 Market Definition Notice:[6]

"*When products are significantly differentiated […], market shares may provide a less reliable indicator of market power, and, as part of its competitive assessment, the Commission generally also analyses whether the undertaking(s) involved and other suppliers compete closely. Therefore, […] analysing how closely suppliers compete may be more relevant than assessing market shares in the competitive assessment of differentiated markets*".

77. When the assumptions of the classical models clearly are invalid, alternative modelling approaches may be more appropriate for evaluating the competitive effects of the merger in question.[7] In certain settings, such alternative models can predict pro-competitive merger effects, even in the absence of efficiencies or synergies.

78. The classical models presented above also have important limitations when it comes to capturing dynamic demand effects. For instance, network effects—whereby the value of a product for a user increases with the total number of its users—can fundamentally change the competitive impact of a merger. Network effects may raise barriers to entry or expansion following a merger, thus allowing the merged entity to foreclose competitors or make it more difficult for rival providers to expand their customer base (see e.g. Argentesi et al., 2021). In such environments—the digital sector being the most salient example—mergers can accelerate market tipping in favour of the largest players, giving rise to "winner-takes-all" or "winner-takes-most" dynamics. Conversely, a merger that would allow runners-up to reach a critical size may counter these dynamics and hence enhance consumer choice.

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not change the underlying cost structure but rather simply move the firms to a different point along preexisting cost curves (e.g. when the merger exploits economies of scale by concentrating production in one plant instead of spreading it across multiple sites). Such "basic" efficiencies are usually included in the standard merger models here discussed but often are insufficient to offset the price increase induced by the merger.

6 European Commission (2024), "Communication from the Commission – Commission Notice on the definition of the relevant market for the purposes of Union competition law", *Official Journal of the European Union*, C/2024/1645, 22.2.2024 (*"2024 Market Definition Notice"*), para. 110.

7 See Appendix A for some alternative approaches, such settings with local markets (A.1.1), Bertrand with capacity constraints (A.1.2), mergers between intermediaries (A.1.3) or leader-follower models (A.1.4).

3.2 Investment, innovation and competition

3.2.1 Introduction

79. Outside of the set of static variables examined in the classical Bertrand and Cournot frameworks, the first and most natural variables through which competition can affect firms' behaviour are investment and innovation. These are inherently dynamic variables that represent current expenditures aimed at increasing future profits, whether in existing or yet-to-exist markets.

80. Because investment and innovation can take many forms depending on their purpose, a natural first step is to identify a taxonomy that helps to understand the different ways in which mergers may affect them. This definitional exercise, however, is far from trivial and, to the best of our knowledge, has not been systematically carried out in the literature.

81. A useful starting point distinguishes between investment and innovation. In macroeconomic theory, for example, investment refers to current expenditures that increase future physical capital stocks and are typically relatively free from uncertainty.[8] Innovation, by contrast, inherently involves uncertainty, as it introduces novelty. Innovation is therefore riskier than investment, at least in terms of the predictability of its outcome. Expanding an existing plant, replicating a known production process or purchasing cost-reducing or feature-improving machinery are forms of investment with known, well-understood outcomes. Developing a new product feature or technology, on the other hand, involves expenditures with (sometimes highly) uncertain results.

82. A related difference between investment and innovation concerns the magnitude of the "change" each brings about. Investment typically involves incremental (i.e. small, continuous) changes to existing products or production processes, whereas innovation often targets more radical changes that can transform products or entire industries or even create new ones.

83. For merger assessment purposes, however, what matters is less the intrinsic properties of the expenditure and its outcomes than its purpose or target (i.e. what it is meant to affect) and how the merger influences the incentives, ability and potential effects of undertaking it. From this perspective, innovation can be conceived as a particular type of investment that involves more uncertain and potentially radical outcomes. For this reason, in this report, we use "investment" as an overarching term encompassing all types of current expenditures aimed at increasing future profits, with innovation understood as a specific type of such expenditures.[9] We will therefore focus on merger effects on *investment*.

84. While the IO literature more often focuses—at least terminologically—on innovation, this does not mean that mergers cannot affect other types of investment. If the underlying purpose or target variable of the expenditure is the same, whether it is more or less uncertain or radical should influence mainly the magnitude, not the direction, of a merger's effect on the investment.

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[8] See, for example, Ljungqvist and Sargent (2018).

[9] It is worth noting, however, that the economic literature rarely offers a precise definition of "innovation". Most studies use the term without formal conceptualisation, relying instead on "intuitive" proxies such as R&D spending, patent counts or product introductions, depending on the available data.

85. Within this broad definition of investment, two main categories can be distinguished based on their target variables: *process investment* and *product investment*.[10] Process investment (sometimes also called "cost-reducing" investment)[11] affects *how* a firm produces its output and can be conceptualised as a downward shift in the firm's cost curve. This includes investment in production capacity (i.e. scale). Product investment (also known as "demand-enhancing")[12] affects *what* the firm produces and can be conceived as an upward shift in its firm-specific (or residual) demand curve. In both cases, investment may aim at either improving existing processes or products or developing entirely new ones.[13]

3.2.2 The ongoing debate on the relationship between investment and competition

86. A large body of economic literature analyses the effects that mergers have on firms' incentives to invest. A natural (although incomplete, as explained below) way to investigate this is to study the relationship between investment and the model parameter intended to capture the intensity of competition, as the first-order effect of a merger is a decrease in the latter (as explained before). The debate within the economics profession about such a relationship has been fundamentally shaped by the seminal contributions of Schumpeter (1942), Arrow (1962) and Gilbert and Newberry (1982).

87. Schumpeter (1942) and Arrow (1962) are usually presented, often incorrectly, as two opposite views.

88. On the one hand, Schumpeter (1942) argues that market power (i.e. the ability of a firm to price its products or services above marginal costs)[14] can promote investment. According to this view, the short-run benefits from competitive pricing can be outweighed by the long-run benefits of market power on firms' incentives to invest. In simple terms, firms with market power may be better positioned to invest, since scale, resources and stability enable sustained R&D investment. Market leaders, protected by temporary rents, can afford to invest in R&D, while laggards have fewer incentives to catch up when competition is strong and expected returns are low.

89. On the other hand, Arrow (1962) argues that market power can be detrimental to investment because the difference between post- and pre-investment profits increases with the intensity of competition. A monopolist has fewer incentives to invest in R&D than a firm facing competition because the monopolist makes substantial profits even without investing. As a corollary, Aghion et al. (2001) develop the notion of the "escape competition" effect, according to which firms are incentivised to innovate to escape from intense competition.

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[10] We note that the literature uses more commonly the terms "process innovation" and "product innovation", respectively. See, for example, Jullien and Lefouili (2018).

[11] See, for example, Bourreau et al. (2024).

[12] *Ibid*.

[13] Several contributions in the literature have adopted the distinction between process and product investment explicitly. Lefouili and Madio (2025), for instance, classify firms' expenditures according to whether they aim to develop new products, improve product quality or reduce production costs. Similarly, Bourreau et al. (2024) analyse the effects of a horizontal merger in a framework where investment can simultaneously reduce costs and/or enhance quality.

[14] See, for example, Tirole (1988).

90. However, the conclusions in Arrow (1962) change in the presence of potential entry. Gilbert and Newberry (1982) show that the current monopolist may lose profits if it does not innovate while a potential entrant does. In this case, the monopolist may have stronger incentives to invest in R&D than a potential entrant: through investment, the monopolist may pre-empt investment by a potential entrant and maintain its monopoly rent.

91. While the mechanisms proposed by Schumpeter and Arrow may seem contradictory, they are in fact not mutually exclusive and can be placed together in a richer model to provide useful insights into merger effects. For instance, Aghion et al. (2001) reconcile these different views in a dynamic setting, showing an inverted-U relationship between competition and investment. At low levels of competition, firms with secure market power face weak incentives to innovate because they can sustain profits without doing so. As rivalry increases, firms are spurred to invest to "escape" competition and capture transient rents, leading to higher investment rates. Yet when competition becomes too intense, expected returns from investment diminish, profits approach zero and firms lose the resources needed to finance R&D. Hence both extremes, monopoly and perfect competition, are associated with low investment, while the highest investment incentives arise at intermediate levels of competitive pressure.

92. Another important factor in understanding the differing views of Schumpeter and Arrow is appropriability, that is, the extent to which a firm can capture the returns of its investment. The economic literature on the topic, led by Shapiro (2011), Gilbert and Greene (2014) and Régibeau and Rockett (2019), explains that the level of appropriability determines which of the two effects dominates. When appropriability is weak, the Schumpeterian effect prevails: a reduction in competition more market power will increase appropriation, thus giving firms more incentives to invest. On the contrary, when appropriation is strong, Arrow's effect prevails: a monopolist can already secure high profits and therefore has fewer incentives to invest than a firm in a competitive setting. Since appropriability decreases with the intensity of competition, when the level of competition is low, the Arrow effect is expected to dominate and an increase in competition will foster investment. Conversely, when competition is strong, appropriability is very low, the Schumpeterian effect should prevail and any further increase in competition will reduce the incentives to invest.

93. Despite its richness, the literature on competition and investment building on Schumpeter and Arrow's seminal contributions has limitations when applied to the analysis of the effects of mergers on investment. As Shapiro (2011) and others point out, a merger affects investment decisions through not only its direct effect on the intensity of competition but also the creation of investment synergies and internalisation of important externalities that the merging parties exert on one another in the absence of the merger, when they compete with each other. Investment by one firm can generate positive or negative externalities for its rivals, depending on whether it strengthens or weakens their competitive position. By merging, firms internalise these effects, altering their incentives to invest in ways that go beyond the simple effect of reduced competition. Understanding these additional mechanisms is crucial to correctly assess the impact of mergers on investment decisions.

3.2.3 The effect of mergers on the incentives to invest

94. In the economic literature, studies analysing mergers effects on investment incentives can be divided into two broad categories depending on how they model the investment process: one-step and step-by-step investment models. The distinction lies in whether investment is treated as a single decision with a probabilistic outcome or as a sequential process that unfolds over time.

3.2.3.1 *One-step investment*

95. In one-step investment models, firms choose a level of effort or, more generally, an amount of resources to commit that determines the probability of success of their investment project. Investment is therefore a one-shot decision that involves a trade-off between current costs and expected future gains.

96. Within this framework, two main lines of thought have emerged regarding the impact of mergers on investment incentives. The first, represented for instance by Federico et al. (2017), argues that mergers always reduce firms' incentives to invest. The second, summarised by Jullien and Lefouili (2018), revisits these results and highlights that additional mechanisms can in fact *increase* the merged entity's incentives to invest. Consequently, the overall effect of a merger on investment is theoretically ambiguous: it may be negative in some contexts, as argued by Valletti (2025), and positive in others, depending on the nature of competition and direction of externalities that merging firms exert on one another.

97. Federico et al. (2017) present a model in which the main mechanism driving firms' incentives to invest is that investment by one firm diverts sales from others. The authors show that if two firms merge but continue investing in both units, the merged entity will internalise this negative sales externality. In consequence, the merging parties reduce their overall R&D efforts compared to those undertaken in the absence of the merger. Mergers therefore decrease firms' incentives to invest.

98. Follow-up papers (e.g. Federico et al., 2018; Valletti, 2025) reinforce this view, arguing for a general "innovation theory of harm" ("ITOH") which defends that, on top of the unilateral price effects, mergers tend to reduce firms' incentives to invest by internalising competition between previously independent R&D efforts. Federico et al. (2018) consider a symmetric oligopoly in which firms innovate to improve product quality. When an innovation is successful, the new product replaces the old one. Through numerical simulations, the authors show that higher prices stemming from unilateral effects increase margins and, in this way, incentives to invest. However, the innovation diversion effect—that is, the fact that successful innovation diverts sales away from competitors—reduces these incentives. In their simulations, the latter prevails, implying that a merger leads to a net reduction in the merging parties' incentives to invest.

99. Valletti (2025) draws on related literature to summarise the instances in which the ITOH might apply, concluding that "*[i]n models with competition both over innovation and final products, in the absence of synergies or positive spillovers, a merger is likely to be bad for consumers*".

100. The model in Federico et al. (2017) and the follow-up papers have raised criticisms that challenge the robustness of the ITOH, particularly with regard to two of its assumptions: (i) how firms organise their R&D efforts post-merger and (ii) the direction of the innovation diversion effect.

101. The first criticism concerns the assumption that the merged entity continues to pursue both research programmes independently. In addition, the model assumes that the merged firm must make the same level of investment in both R&D projects. In this way, the only way the merged firm can internalise the externality in this case is by cutting funding to both R&D projects equally. When firms work on overlapping projects, this assumption is unrealistic. In practice, the merged entity may shut down the least promising R&D line to avoid duplication and reallocate resources to the more promising one. Along these lines, Denicolò and Polo (2018) show that, under certain conditions, concentrating R&D in a single lab can increase the probability of success. This result depends on the degree of decreasing returns to investment in R&D: as long as such returns do not decrease "too fast", focusing effort on a single project may yield better results than spreading resources thinly across projects. Under these conditions, mergers can increase total investment. Mukherjee (2022) further challenges these conclusions by showing that, even with decreasing returns, the merger can enhance investment and consumer surplus when the merged entity invests in cost-saving technologies rather than in new products.

102. The second criticism concerns the assumption that the innovation diversion effect is always negative. The model assumes that investment always cannibalises rivals' sales, but this overlooks cases of horizontal differentiation. Bourreau and Jullien (2018) show that when R&D leads to more differentiation, investment by one firm can benefit competitors by relaxing price competition and expanding total market demand. In such cases, mergers may strengthen incentives to invest in differentiation-oriented projects rather than suppress them.

103. Moreover, contrary to Valletti (2025), Jeanjean and Ciriani (2025a) propose a counterexample within a static Cournot model of competition with cost-reducing investment. The model shows that mergers can improve consumer welfare even in the absence of efficiencies, synergies or positive spillovers. The model highlights two opposing forces. On the one hand, individual quantities increase post-merger, but the aggregate quantity decreases, thus driving price up and harming consumer welfare. On the other hand, higher individual output levels give each firm stronger incentives to invest in the cost-saving technology, as the cost savings are applied on more units. If these further cost reductions are large enough to outweigh the price-increasing effect of reduced competition, aggregate output rises, price falls and consumer welfare improves after the merger.

104. D'Annunzio et al. (2025) develop a framework of product investment in which successful R&D generates new products that coexist with existing ones. Their baseline model considers neither efficiency gains nor spillovers. A merger to monopoly can increase innovation as long as the merged entity's incremental value from a second innovation exceeds the pre-merger profit each firm obtains when both firms innovate. This is more likely to be the case when products exhibit low differentiation, as the merged firm's enhanced ability to coordinate pricing across its two products outweighs the negative effect of internalising innovation externalities. The impact on consumer welfare depends on both the extent of price increases and whether the merger enhances or

diminishes innovation. The authors show that mergers can lead to an increase in consumer surplus for certain classes of R&D cost functions. Analysing the effects of a 3-to-2 merger on the merging and non-merging firms' innovation efforts, the authors find that in equilibrium innovation may increase for the merged entity, the outsider or both, but never for neither. However, 3-to-2 mergers can harm consumers more than mergers to monopoly. The intuition is that the presence of an outsider moderates the merger-induced increase in market power, thus reducing the potential innovation benefits that could otherwise offset harm.

105. Moraga-González and Motchenkova (2026) develop a more general, unified model of mergers to monopoly in which R&D investment can affect both the probability of innovation success and the innovation's payoff. In this way, they add a new channel for innovation externalities working through payoffs. When innovation improves costs or quality, this channel tends to reduce investment incentives. However, the overall merger effect can flip depending on the pre-merger innovation level and on whether incentives are driven by "catch-up" or "escape" states.

106. Taken together, these critiques challenge the generalisation of the ITOH proposed by Federico et al. (2017) and Valletti (2025). The ITOH stems from settings that focus on unilateral price effects and consider only negative, second-order investment effects.

107. Jullien and Lefouili (2018) emphasise the need to account for a broader range of mechanisms through which mergers can, negatively or positively, affect firms' incentives to invest. As previously explained, analysing the effects of a merger on a certain type of investment is not entirely equivalent to analysing how the intensity of competition affects that type of investment. A merger not only affects competition but also internalises investment externalities between the merging firms. On top of that, mergers may generate investment spillovers and synergies that modify investment incentives as well as abilities. Within this broader framework, five main channels through which mergers affect investment emerge: (i) innovation diversion, (ii) margin expansion, (iii) demand expansion, (iv) technological spillovers and (v) investment synergies.[15]

108. Innovation diversion effects arise from the internalisation of sales externalities, positive or negative, that the merging parties exert on each other in the absence of the merger. These sales externalities concern product investment, and not process investment, where other types of relevant externalities are present.

109. The sign of the innovation diversion effect depends on the type of product investment in question.

110. The innovation diversion effect is negative when the investment aims to develop a directly competing product that would divert sales away from rivals. Once this business-stealing effect is internalised, all else equal, the merged entity has weaker incentives to undertake or sustain such an investment. This is the mechanism driving the results in Federico et al. (2017). However, as shown by others, including D'Annunzio et al. (2025) and Denicolò and Polo (2018), mergers can increase investment even when the innovation diversion effect is negative.

[15] We note that Jullien and Lefouili (2018) do not consider channel (v), investment synergies, in their analysis.

111. Conversely, the innovation diversion effect is positive when product investment increases horizontal differentiation and expands demand for both merging firms. This constitutes a positive externality which, when internalised through the merger, enhances investment incentives.

112. The margin and demand expansion effects stem from the first-order changes in price-cost margins and output following a merger. These changes affect the scale and profitability of the merging parties' operations and therefore the expected returns from different types of investment.

113. Margin expansion is related to process investment and typically has a negative effect on firms' incentives to invest. When output falls following a merger, cost-saving investments apply to a smaller production base, thereby reducing the expected return from the investment. However, this effect may be mitigated if the merging firms' investments are non-rival across plants or products—for example, when a single technological improvement could be implemented across all production facilities. In such cases, the relevant scale for applying the cost reduction becomes the merged entity's total output, which most likely exceeds the output of each firm in the absence of the merger. In this case, the merger increases the incentives to invest in this type of technology. Yet because merged firms often consolidate overlapping R&D projects, the overall effect of the margin expansion mechanism on the merging parties' aggregate investment remains theoretically ambiguous.

114. Demand expansion relates to product investment and has a positive effect on the incentives to invest. The increase in margins post-merger implies a stronger incentive to invest on expanding the quantities on which those margins apply. Analysing the effects on the incentives to invest in the coverage of a new technology, Bourreau and Jullien (2018) find that a merger to monopoly raises prices but also increases total coverage and can therefore increase consumer welfare. This result does not hold in all circumstances, however. Testing different types of demand, Bourreau et al. (2024) suggest that, in the absence of synergies and spillovers, a merger is unlikely to benefit consumers even if it leads to higher levels of investment through the demand expansion effect.

115. Both product and process investments can generate positive technological spillovers on rivals. Spillovers may be related to weak intellectual property ("IP") protections, mobility of researchers or intertemporal spillovers in the case of sequential or cumulative investments. They can lead to the accumulation of skills, knowledge or technology, creating a positive externality that can further strengthen post-merger incentives to invest.

116. A key parameter in the analysis of spillover effects is the degree of appropriability of the investment in question; that is, the extent to which the investing firm can capture the value of its investments. When appropriability is low, part of the investment benefits competitors, and a merger can improve investment incentives by allowing better internal use and capture of the investment benefits. When appropriability is high, firms already capture most of the gains from investment, and the merger adds less. As shown by Régibeau and Rockett (2019), the lower the pre-merger appropriability, the greater the potential investment gains from merging.

117. Low appropriability also may give rise to hold-up problems, particularly when innovation is sequential or cumulative. Régibeau and Rockett (2019) show that, in these cases, a merger also can align incentives between early-stage and follow-on innovators. However, it may reduce

incentives for follow-up investment if the merged entity prefers to avoid cannibalising earlier products.

118. When product investment is cumulative, current investments in R&D may affect future investment projects, and spillovers can thus compete with the innovation diversion effect discussed earlier. If spillovers are sufficiently important, then the firms pursuing the investment will not have an incentive to reduce the rate of investment post-merger. Building on this idea and the logic of the upward pricing pressure ("UPP") methodology, Salinger (2019) proposes the "net innovation pressure" ("NIP") framework to quantify the trade-off between spillovers and diversion. The NIP compares the spillover rate (how much one firm's investment benefits the other) with the innovation diversion ratio. A merger increases investment incentives if the spillover rate is larger than the diversion ratio and reduces them otherwise. Bourreau and Jullien (2018) suggest a similar "spillover-adjusted innovation diversion ratio" based on the same logic.

119. Synergies represent another important mechanism, particularly in investment-intensive industries. Mergers can facilitate the pooling of complementary assets such as know-how, research facilities or talent, which raises R&D productivity. These synergies may expand the firm's ability to innovate by reducing marginal costs of investment or increasing the quality of the products. Shelanski and Katz (2006) highlight efficiency defences grounded in enhanced risk-sharing and greater capacity to fund investment post-merger.

120. In the case of process or cost-reducing investment, Motta and Tarantino (2021) highlight the "strategic effect" on investment. When firms observe each other's cost-reducing investments before setting their prices, each firm takes into account that raising its investment reduces the price set by its rivals, as they foresee a lower price from the investing firm and react accordingly. This increases price competition and negatively impacts the firm's own profits. The strategic effect on investment is negative: the merged entity will internalise that the investment will increase the pricing pressure on all of the merging parties' profits, thus reducing the incentives to invest compared to the absent-merger scenario.

3.2.3.2 *Step-by-step investment*

121. Step-by-step investment models consider investment as a sequential process that unfolds over time. This framework captures industries where investment is frequent, and firms' competitive positions evolve with it.

122. Within this framework, Aghion et al. (2001) investigate the conditions under which more intense competition leads to more investment. In the model, two firms compete in prices over time and can invest in uncertain, cost-reducing R&D. Firms can thus operate the same technology ("neck-and-neck") or different ones ("leader–laggard"). Each state can lead to different incentives to invest: leaders and peers invest to widen the technological gap, while laggards invest to catch up.

123. The model predicts that some degree of competition is always beneficial to investment. With no competition, each firm enjoys profits regardless of their technology and thus has no incentives to invest. Once competition is introduced, profits depend on technological leadership, and firms invest to gain or preserve that advantage.

124. In this way, Aghion et al. (2001) argue that the Schumpeterian idea that firms with market power necessarily invest more in R&D is misleading because it ignores the "escape-from-competition" effect: firms innovate not because they already enjoy market power, but because the result from investment allows them to capture it.

125. However, intense competition can reduce returns on investment. As competition intensifies, R&D expenditure increases, resulting in a faster exit from this innovative neck-and-neck state. Consequently, the composition of a large share of industries changes to leader–laggard, where the R&D investments ultimately become less profitable. Aghion et al. (2014) reinforce this finding within the Schumpeterian growth model framework, arguing that if competition is too intense it can erode expected rents and incentives to invest.

126. In short, in the model, the effect of competition on investment usually is positive with decreasing returns but sometimes exhibits a decreasing part, often referred to as an inverted-U shape,[16] where investment is maximised at intermediate levels of competition. Aghion et al. (2005) provide empirical evidence on the existence of the inverted-U relationship relying on data from UK firms' patenting activity.

127. Jeanjean (2021) develops a model to bridge Aghion et al. (2001) with the standard IO models. Firms invest in cost-saving technology, and a higher rate of technological progress reduces the optimal level of competition needed to maximise investments. Cost-saving investments reduce the cost of future investments, making the Arrow appropriability effect less relevant. At the same time, the Schumpeter effect strengthens as the profits that could be eroded by intense competition increase.

128. The model in Aghion et al. (2001) is only relevant in stable oligopolies with rapid pace of recurrent investment. No theory suggests the presence of an "inverted-U" in two-stage models such as Federico et al. (2017) or Jullien and Lefouili (2018). The standard IO literature generally supports a case-by-case analysis of the competitive effects of a merger on the impact on investment incentives. Relying on a rule based on a generalised "inverted-U" relationship between competition and investment may fail to take into account the specific characteristics of the industry in question, such as the types of investment, their impact on consumer welfare and the presence of potential spillover effects and synergies between the merging parties. These factors are crucial to the economic assessment of a merger.

3.2.3.3 *Other supply-side effects of mergers*

129. Other supply-side mechanisms may be relevant in determining the effects of mergers on consumer welfare. One example is product positioning, which is relevant in markets with differentiated products (e.g. when firms compete along dimensions such as product characteristics, quality or geographical location).

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[16] Referring to the relationship between competition and investment as "inverted-U-shaped" can be misleading as it suggests that the decreasing and increasing parts are comparable in their magnitude. These models or their corresponding empirical explorations rarely confirm such true inverted-U relationship, but rather point to a mostly increasing shape with a short decreasing part, closer to an inverted-J.

130. In this type of market, closeness of competition is a crucial determinant of merger effects. However, closeness of competition is not fixed, but rather the outcome of the strategic decisions made by firms, and therefore may evolve post-merger. For example, two firms may be close competitors before the merger but may have an incentive to reposition their products post-merger to reduce internal cannibalisation and increase overall market coverage.

131. Gandhi et al. (2008) analyse this mechanism in a setting where firms compete in both price and product positioning.[17] In this model, products located closer to each other compete more intensely, while greater distance captures stronger differentiation. Following a merger, the products of the merging firms are repositioned farther apart to reduce cannibalisation, and non-merging firms reposition their products between them. These adjustments produce several effects. First, product variety increases, which benefits consumers directly. Second, by reducing the closeness of competition between the merging parties' products, repositioning weakens unilateral price effects. At the same time, greater differentiation gives each product more local market power, exerting upward pressure on prices. Either price effect may dominate. However, Gandhi et al. (2008) find that consumer welfare is generally much higher when repositioning is endogenous than when it is fixed.

3.2.4 Conclusions

132. The economic literature shows that the relationship between competition and investment is complex, with opposing effects on firms' incentives to invest and on consumer welfare. Schumpeter (1942) holds that market power fosters investment by securing post-investment rents that allow firms to finance risky R&D. In contrast, Arrow (1962) argues that stronger competition increases investment incentives because the gains from successful projects (the so-called replacement effect) are greater when pre-investment profits are low. Aghion et al. (2001) reconcile these views by suggesting a more complex relationship between competition and investment: moderate rivalry stimulates investment through an escape-competition effect, while excessive competition might reduce incentives to invest.

133. Building on this general framework, the literature analysing mergers and investment decisions investigates how these incentives interact with the internalisation of investment externalities between the merging parties. As supported by Federico et al. (2017), mergers can reduce investment through a negative innovation diversion effect: when two firms merge, they internalise the business-stealing externality between their projects and thus have less incentive to invest in both. However, this mechanism does not hold in all cases, as shown by Denicolò and Polo (2018) (non-decreasing returns to R&D), Jullien and Lefouili (2018) (positive innovation diversion effect) and D'Annunzio et al. (2025) (larger post-merger profits from innovation due to price effects).

134. Jullien and Lefouili (2018) also highlight how investment decisions interact with otherwise standard unilateral merger effects. Through the margin expansion effect, reduced output leads to weaker incentives to invest in cost-reducing technologies. Through the demand expansion effect,

[17] Product positioning occurs along an abstract product line, a la Hotelling (1929). Consumers are spread out along the same line. A consumer's location on the line represents their preferences for the different "locations" of the goods: a firm is more attractive to a consumer the closer it is to them, all other things being equal.

increased margins strengthen the incentives to invest in demand-expanding projects. These effects may offset other negative externalities and increase consumer welfare.

135. Other strands of the literature emphasise the role played by technological linkages such as technological spillovers and synergies. Positive spillovers arise when investment by one firm benefits other, for example, through knowledge diffusion, weak intellectual-property protection or labour mobility. When appropriability is low, a merger can increase investment by improving the merged entity's ability to capture these external benefits, as discussed by Régibeau and Rockett (2019). Similarly, investment synergies such as know-how pooling, sharing research infrastructure or reallocation of talent can enhance post-merger investment productivity (Shelanski and Katz, 2006).

136. Taken together, the mechanisms identified in the economic literature show that the effects of horizontal mergers on investment are theoretically ambiguous and strongly context dependent. Mergers can either strengthen or weaken firms' incentives to invest, depending on factors such as the type of investment involved, technological and demand environment, and nature of externalities that link firms' decisions. These effects cannot be inferred from simple concentration measures such as market shares or from assumptions about the relationship between competition and investment. Instead, the literature shows that different forms of investment, and the externalities they generate, interact in complex ways to determine the direction of change in the incentives to incur in such investments post-merger. The overall impact of a merger on investment therefore depends on the balance of all competing forces, which may enhance or erode consumer welfare depending on the underlying market conditions.

3.3 Within the firm: firms' boundaries and capabilities

3.3.1 Theoretical foundations: incomplete contracts and firm boundaries

137. The economic literature on the theory of the firm and firm boundaries offers a conceptual lens for understanding how firms can coordinate complex activities.

138. Firms seeking to align incentives or exploit complementarities can choose between contractual or collaborative arrangements (e.g. licensing agreements, joint ventures or long-term supply contracts) and full integration through a merger or acquisition. Both mechanisms aim to facilitate coordination and realise efficiencies but differ in how they allocate control and distribute residual rights (i.e. the authority to decide in unforeseen states of the world). In incomplete-contracting settings, particularly in long-term, investment-intensive projects, contracts cannot specify or enforce all future contingencies, particularly where actions or outcomes are non-verifiable by third parties. Ownership therefore matters because it can allocate residual control rights and thus strengthen incentives for the party whose non-contractible investments are most important for value creation (Grossman and Hart, 1986; Hart and Moore,1990).

139. Regulators often view contractual alternatives as potentially less distortive to competition than mergers since they preserve separate decision-making entities while still facilitating coordination. However, contracts cannot always replicate what can be achieved through mergers. Transaction-

cost economics similarly predicts integration when relationship- or asset-specific investments and uncertainty are high and can expose parties to opportunism and costly renegotiation ("hold-up"), weakening ex ante investment incentives. In these scenarios, integration is preferable to market contracting, as it can mitigate these hazards and economise on bargaining and enforcement costs (Williamson, 1979, 1985, 2002; Klein at al., 1978).

140. Together, these theories explain how firm boundaries emerge as governance structures that economise on transaction costs and protect incentives for investment. In this context, mergers can be seen not merely as instruments for expanding market power or achieving operational synergies, but as organisational responses to the limitations of contracts. This organisational rationale is particularly relevant in merger assessment: it highlights that integration may enhance efficiency when contracting constraints prevent firms from achieving the same coordination benefits through arms-length agreements. Yet it underscores the need for careful assessment, as the same consolidation that mitigates transaction hazards can simultaneously alter competitive dynamics and concentration in the market.

3.3.2 Joint ventures and strategic alliances

141. Firms may consider joint ventures, strategic alliances or other hybrid forms of cooperation that combine contractual autonomy with elements of organisational integration. These arrangements allow firms to share risks, pool complementary assets and explore new technologies while maintaining independent ownership and strategic flexibility (Hagedoorn, 1993; Powell et al., 1996). In industries characterised by rapid technological change, alliances provide a mechanism for accessing external knowledge and capabilities without the irreversible commitment of a merger.

142. However, alliances and joint ventures face many of the same fundamental contracting challenges that motivate integration. Aghion and Tirole (1994) show that cooperation in R&D can generate misaligned incentives because research effort and outcomes are largely non-contractible, making the allocation of control rights central to investment incentives. In addition, relational or trust-based cooperation can be destabilised by shocks or changing expectations, triggering renegotiation or defection (Baker et al., 2002).

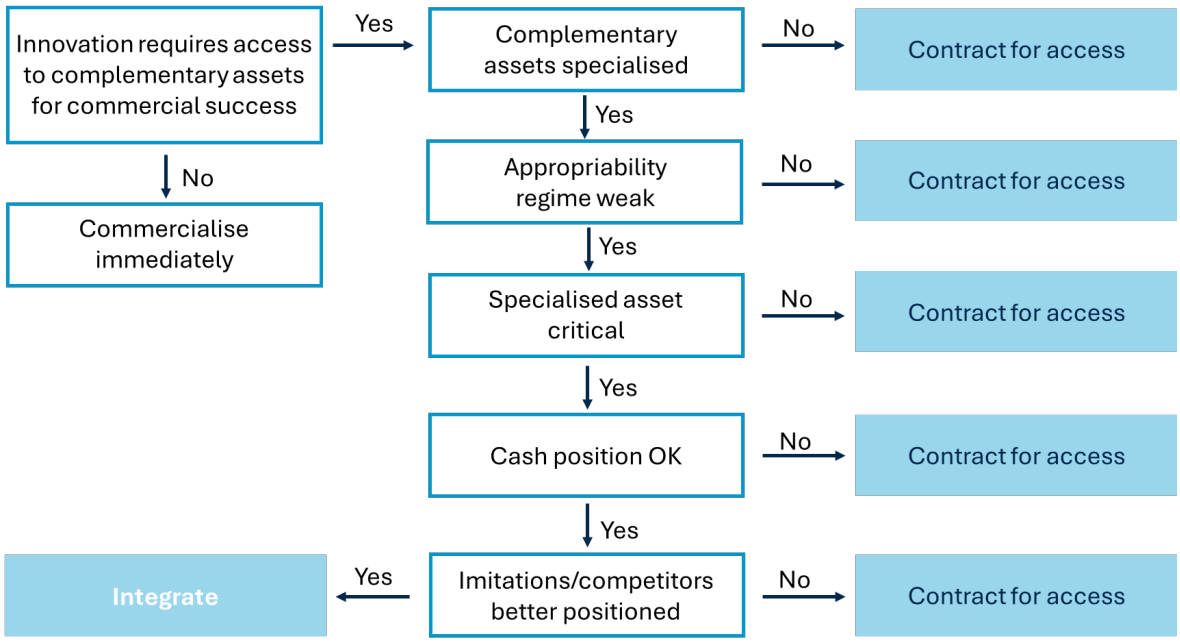
143. Empirical work broadly confirms these theoretical insights. Studies of European high-technology industries show that alliances work best for early, exploratory R&D where experimentation and mutual learning are key, while acquisitions perform better in later stages when commercialisation and tight coordination matter most (Cassiman et al., 2005; Hagedoorn and Hesen, 2007). As technologies mature, many alliances gradually evolve into acquisitions, as control conflicts and divergent strategies emerge and integration becomes the natural way to stabilise cooperation (Gulati, 1998; Hagedoorn and Duysters, 2002).

144. Building on these findings, Teece (1986) formalises the firm's governance choice as a decision tree that links business-model design to value-capture strategy. The framework begins by asking whether an investment requires access to complementary assets such as manufacturing, distribution or marketing capabilities for successful commercialisation. If not, the firm can

commercialise independently. If access is required, the next step is to assess whether those complementary assets are specialised. When they are generic—for instance, standard manufacturing or distribution services—firms can efficiently contract for access. When they are specialised, the analysis turns to the appropriability question. Under strong appropriability where IP rights reliably protect returns, contractual governance suffices; under weak appropriability where imitation is easy, integration becomes more attractive.

145. If the appropriability regime is weak, the next decision concerns whether the specialised asset is critical to commercial success. When it is peripheral, contracts remain efficient; when it is critical, ownership becomes strategically important. At this stage, the firm's financial capacity becomes the binding constraint: integration is feasible only if the firm's cash position is sufficient to finance acquisition or internal development. Even then, Teece's framework adds one final consideration: competitive positioning. If rivals or potential imitators are better positioned to access key assets, integration becomes necessary to maintain parity and protect long-term value capture.

Figure 1. Business model choice (licensing versus integration) to determine value capture strategy



Source: Teece (1986).

3.3.3 Capabilities and the internal organisation of investment

146. While the previous theories explain firm boundaries as responses to contracting and governance frictions, they are often presented in relatively static terms. Capabilities- and knowledge-based perspectives instead view firms as adaptive systems for generating, combining and renewing knowledge (Teece et al., 1997). From this standpoint, firms exist to not only minimise coordination costs but organise learning and capability development, functions that markets and contracts cannot perform easily. Internal organisation allows firms to coordinate interdependent activities, protect proprietary know-how and accumulate experience over time. In this sense, mergers can

act as mechanisms for capability reconfiguration, enabling firms to combine complementary technological, organisational or managerial assets that would be difficult to align through contracts or alliances alone. By internalising critical interfaces, integration enhances knowledge transfer, joint problem-solving and dynamic efficiency (Teece, 1986; Petit and Teece, 2021).

3.4 Corporate finance: effect of merger on financing ability

147. Research in corporate finance shows that mergers can affect investment by at least one of the merging parties—typically the target—by altering their external and internal financing opportunities. The financial channel operates not through changes in the expected cash flows or intrinsic profitability of a given project but through the firm's ability to obtain funding and the terms at which such funding is provided. By affecting the cost and availability of capital, mergers may render feasible some projects that otherwise would be abandoned. However, negative effects are possible as well.

148. Merger assessment should therefore clearly distinguish between how the merger changes (i) the return profile of future investment (e.g. by increasing the customer base on which fixed-cost investments will be diluted—a product-market question) and (ii) the cost and availability of financing for those investments (the corporate finance question).

149. According to the Modigliani–Miller theorem,[18] in well-functioning capital markets, without taxes or imperfections (such as those arising from asymmetric information between investors and the firm), a project's financing prospects depend solely on its intrinsic risk and return profile, not on ownership or corporate structure. In such setting, mergers *do not* affect the target's investment possibilities or costs. This implies that capital market imperfections (or "frictions") are a theoretical prerequisite for mergers to have an effect on investment via the financial channel.

150. The literature identifies two main types of effects through which mergers can affect firms' ability to finance their investments:

    i. The "more-money effect" (Stein, 2003): the merger can improve access to external financing for merging parties by either:

        1. relaxing the financial constraints faced pre-merger by (one of the) merging firms, or

        2. reducing the overall risk borne by investors.

    ii. The "smarter-money effect" (Stein, 2003): the merger can affect how resources are allocated across projects through the merged entity's internal capital market.

151. These mechanisms point to a set of practical considerations for merger control. Specifically, whenever firms face financial constraints, neglecting the way in which mergers affect firms' access to or the cost of capital creates a risk of overlooking important determinants of post-

[18] See Modigliani and Miller (1958).

merger investment capabilities. Based on the literature we review in more detail below, when evaluating mergers, competition authorities therefore should consider:

- the liquidity and financial positions of all merging parties;
- the industry specificity and transferability of the target's assets when it is financially constrained;
- the risk characteristics and correlation of the merging parties' investment projects; and
- productivity or profitability gaps between merging parties' projects and the abundance of internal resources (liquidity) within the merged entity.

3.4.1 Mergers that relax targets' financial constraints

152. Mergers can foster investment by easing firms' financial constraints. This section covers two such mechanisms: (i) liquidity mergers and (ii) conglomerate mergers.

153. The term "liquidity merger", coined by Almeida et al. (2011), describes acquisitions in which financially healthy firms acquire financially constrained industry peers not for operational synergies—which may be completely absent—but to provide liquidity to preserve viable projects that otherwise would be terminated.

154. The model in Almeida et al. (2011) considers a situation where the cash flows from a target's investment project have limited collateral value, constraining its ability to raise external finance. Only a fraction of the project's expected cash flows can be credibly pledged to investors, since managers may extract private benefits and informational asymmetries prevent perfect contracting with outsiders. As a result, the project's profitability is perceived differently by outside investors, and when liquidity needs exceed pledgeable income, even projects with positive net present value may be inefficiently liquidated.

155. In this context, a liquid acquirer can act as liquidity insurance, rescuing such projects. Industry peers are uniquely positioned to extract value from distressed assets because they possess the necessary industry-specific expertise to manage the distressed firm's projects and therefore can capture non-pledgeable rents associated with the assets of the distressed target, something that outsiders cannot do. In this way, the model predicts that liquidity mergers typically occur within the same industry, for which Almeida et al. (2011) find empirical support.

156. By contrast, conglomerate mergers, by definition, involve firms from unrelated sectors. As in Fluck and Lynch (1999), such mergers alleviate the target's financial distress by pooling cash flows and mitigating agency problems, thereby increasing its external financing capacity. Unlike in liquidity mergers, the acquirer does not supply liquidity directly but rather improves the overall risk profile of the target.

157. Another mechanism close to conglomerate mergers (conceived as mergers of "unrelated diversification")[19] is joint financing, which is explored next.

3.4.2 Joint financing: coinsurance versus risk contamination

158. The second mechanism concerns joint financing—that is, the possibility of obtaining cheaper financing terms by funding multiple projects together rather than separately.

159. The traditional view, established at least since Lewellen (1971), holds that pooling unrelated projects ("conglomeration") reduces default risk because the success of one project can offset the failure of another. With less variability in total corporate earnings, fewer defaults occur, and firms can borrow more easily and secure better financing conditions, thus stimulating investment. This is the "coinsurance" effect.

160. However, Banal-Estañol et al. (2013) revisit this argument and introduce the possibility of an opposite result: risk contamination.

161. In their model, two identical ex ante projects can be financed with debt, either together or separately. Each project can either succeed (high return) or fail (low return). If the projects are financed separately, a failing project defaults on its debt without affecting the repayment ability of a successful one, which can repay its debt. If the projects are financed jointly, coinsurance is possible. However, it is also possible that the poor performance of one project can trigger default on the pooled debt, even when the other project would have survived on its own. This contamination reverses the coinsurance effect.

162. Given the interest rate requested by the market for joint financing, the borrowing firm either can repay its debt in the low return–high return scenario (coinsurance) or it cannot repay (risk contamination). When only risk contamination can occur, the financial terms under joint financing are worse than those available for separate projects because joint financing leads to default in more scenarios (so, it is more likely) than separate financing. In this case, then, the firm prefers to finance its projects separately.

163. Whether default is more or less likely under joint financing depends on the fundamental characteristics of the projects. Joint financing is preferable when default costs are low, mean returns are high, the variability (variance) of the returns is low and project outcomes are weakly correlated.

164. It is important to note that, within this setting, a merger cannot worsen the financial conditions that would be available in its absence; it can only improve them. If joint financing results in worse terms than separate financing, then the merged entity would choose to finance projects separately, as would happen in the absence of the merger. Therefore, investment cannot decrease after a merger when we consider this financial mechanism.

[19] See Stein (2003).

3.4.3 Internal capital markets and internal resource allocation

165. The third mechanism regards the way in which a merger can affect the allocation of a fixed volume of total funds across different projects. The question is whether the target's projects receive more or less funding after the merger than they would in the absence of the transaction.

166. In Cestone and Fumagalli (2005), a central headquarters allocates scarce internal liquidity among projects facing financing frictions and competition in their respective markets. Any remaining liquidity needs then must be met through costlier external financing. The ability to reallocate resources has ambiguous effects.

167. When productivity differences across projects are large or total internal liquidity is scarce, the firm engages in winner-picking, directing funds to the most productive units and abandoning weaker projects that might have survived under standalone ownership. In other words, the merger decreases investment in and shuts down the low-productivity project.

168. When productivity gaps are modest and liquidity is relatively abundant, the firm may cross-subsidise weaker units. In this case, the merger increases investment in the low-productivity projects.

169. The intensity of competition matters: the fiercer the competition in the product market of the low-productivity project, the larger the productivity gap and, therefore, the more likely winner-picking becomes. However, if either competition is not too strong or the firm's liquidity is abundant, subsidising the project facing fiercer competition becomes optimal.

170. All in all, internal capital markets can increase the overall level of investment by relaxing financing constraints through cross-subsidisation of projects that would not have been financed on a standalone basis; and/or redeploy investment towards more profitable projects at the expense of less viable ones. When the productivity gap between projects is large enough, a merger also may reduce investment by crowding out lower-productivity projects that would be conducted absent the merger.

4 A revised framework for the assessment of horizontal mergers

171. The current HMG identify the main elements for assessing horizontal mergers but do not accurately reflect how these should be integrated into the overall analysis. In practice, the Commission's approach is biased towards short-term, static effects.

172. First, the Commission tends to adopt a cautious stance when predicting future market developments, focusing on outcomes that are both highly probable and near-term. This risk-averse approach prioritises short-term price effects and may lead to blocking mergers that could benefit consumers over the longer term or imposing disproportionately heavy remedies misaligned with long-term competitive dynamics. Both static and dynamic effects are triggered immediately by the merger but materialise over different timelines. Dynamic effects, such as those linked to investment, innovation and capabilities, are harder to predict and unfold over extended periods. Yet they are essential to consumer welfare and cannot be ignored. Static effects cannot be prioritised simply because dynamic effects are more difficult to ascertain.

173. Second, the current treatment of future effects is asymmetric. Potential anti-competitive outcomes are assessed under a more-likely-than-not standard, while pro-competitive effects are treated as efficiencies subject to a much more demanding standard that merging parties have never met. There is no basis in the economic literature to support such an asymmetry.

174. To address these limitations, we propose adjustments to the assessment framework of horizontal mergers. This revised framework crucially relies on a distinction between **strategic effects** of a merger and merger-induced **efficiencies**.

175. **Strategic effects** are changes in the merging parties' behaviour along the relevant dimensions of competition[20]—prices, quantities, quality, entry and exit, differentiation and repositioning, investment—stemming from merger-induced changes in ability or incentives. As such, they constitute the fundamental object of analysis of the SIEC assessment.

176. By "ability", we mean whether, given their assets, costs and financial and market position after the merger, the parties can deploy a particular strategy (e.g. raise prices, foreclose rivals or undertake large-scale investment) in a way that materially affects customers or competitors. "Ability" covers both the feasibility of a certain action and the capability of the merged entity to produce material effects when undertaking such an action.[21] "Incentives" refer to whether doing so is profitable for the parties.

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[20] By "dimensions of competition" we mean the strategic variables that firms can directly choose and compete on.

[21] "Ability" can be usefully understood as having an internal and an external component. The internal component reflects firm-specific features (e.g. technology, cost structure and organisational design), while the external component reflects conditions outside the firm (e.g. financial constraints, regulation, the state of the technology frontier, input availability and demand conditions). *Capabilities* and *dynamic capabilities* are part of the internal component of ability: they are bundles of routines, know-how and organisational processes that determine how effectively resources (e.g. capital, spectrum, sites or engineers) can be transformed into outcomes (coverage, quality, new services) and how quickly that mix can be adapted over time.

177. Strategic effects can be static—along static variables of competition, to be defined below—or dynamic—along dynamic ones, also defined further below. While dynamic strategic effects (for instance, on investment) may materialise over a longer time horizon, they are nonetheless triggered immediately by the merger through the change in ability and incentives.

178. Crucially, strategic effects can be either pro- or anti-competitive. The same merger may, for example, lead to both unilateral price increases (an anti-competitive effect) and increased investment (a pro-competitive effect) (see, e.g. D'Annunzio et al., 2025). A central recommendation we make in this report is that the Commission should assess positive and negative strategic effects on an equal footing within the SIEC analysis.

179. Identification of the merger's likely strategic effects should be guided by the economic literature—to identify which effects are theoretically plausible given the case's economic and legal context—and grounded in case-specific evidence. The understanding of the merger's likely strategic effects also should be informed by the merger rationale: why the parties are merging and what changes in their conduct they expect to achieve.

180. Strategic effects also can be distinguished as direct and indirect. **Direct strategic effects** stem immediately from the change in ownership implied by the merger, given the set of underlying parameters of the environment (costs, technology, products, demand, regulatory and financial conditions). They are the effects directly identified by standard economic models, such as those reviewed in section 3 (e.g. classic unilateral price effects, innovation diversion or demand expansion effects).

181. **Indirect strategic effects**, by contrast, are not mechanically implied by the change in ownership alone. They arise through **efficiencies**: post-merger changes in underlying parameters such as marginal, variable or fixed costs, risk premia or other technological and organisational conditions.[22] Efficiencies may result from operational synergies in production, sales or distribution or from cost reductions in other activities, including "investment synergies" in R&D or infrastructure.

182. Like direct strategic effects, indirect strategic effects are merger-induced changes in behaviour. However, unlike direct effects, they are mediated by additional merger-driven decisions (such as reorganisation, integration or network optimisation) which must be substantiated by the merging parties to be established. These decisions may enhance the merged entity's ability to compete along relevant dimensions of competition, even where they do not primarily operate through reductions in marginal or variable cost.

183. Once efficiencies are established (i.e. shown to be verifiable and merger-specific[23]), economic theory again provides guidance on their implications for competitive behaviour. A reduction in

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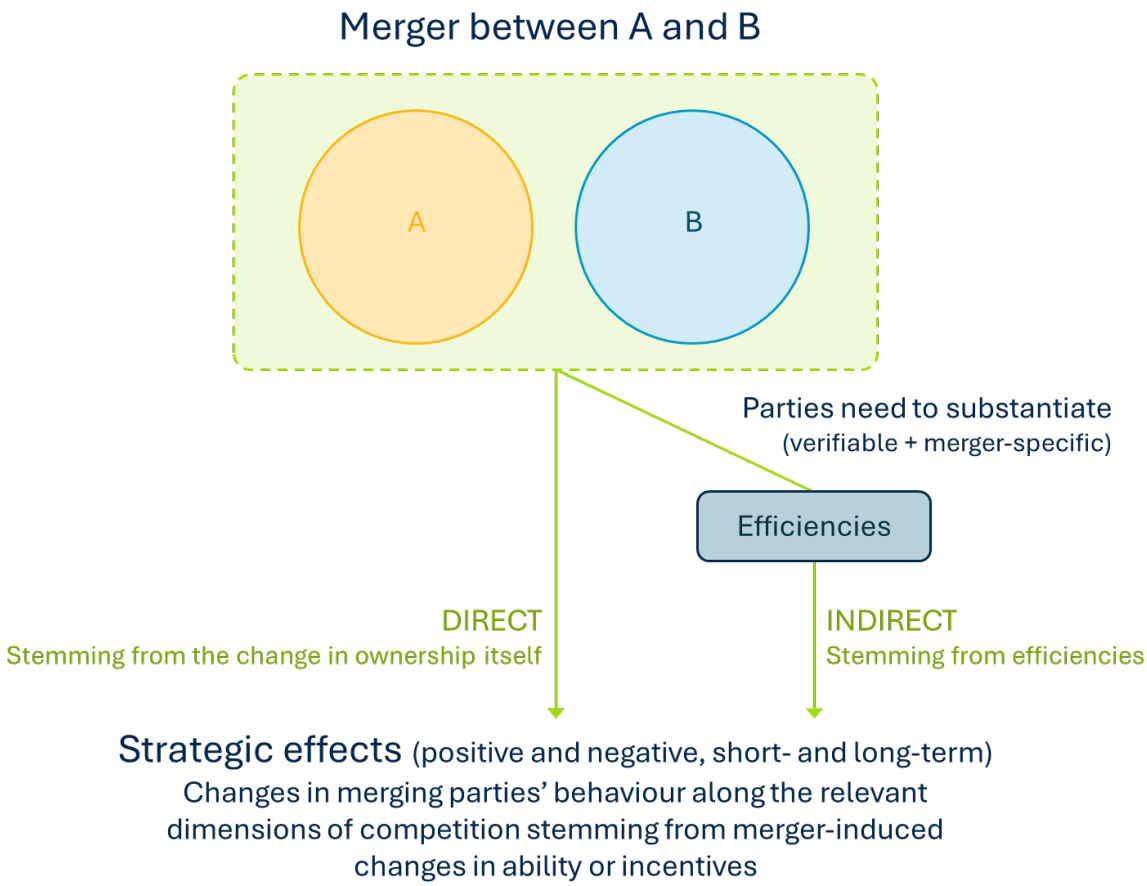
[22] In this way, our definition of efficiencies here is analogous to what the CMA Guidelines define as "rivalry-enhancing efficiencies" ("REEs"). See CMA Guidelines, p. 65, section 8.3.

[23] Note that we are excluding the fact that they have to benefit consumers from the three-prong test for efficiencies. We are distinguishing between this requirement and the other two—namely, verifiability and merger-specificity—because the benefit to consumers is an indirect strategic effect, not an efficiency. For example, standard economic theory shows that, in response to a reduction in marginal cost, price-setting firms will optimally choose to pass on part of this cost reduction to consumers in

marginal cost or in the cost of capital, for instance, will typically affect pricing, output, investment, entry or quality incentives. After substantiation by the merging parties, their behavioural implications are indirect strategic effects established by economic theory, on the same footing as the direct strategic effects that follow immediately from the change in ownership. For that reason, indirect strategic effects should ultimately be assessed under the same evidentiary standard within the SIEC analysis.

Figure 2. Strategic effects versus efficiencies – a visual summary



Note: The figure illustrates the strategic effects that result from the merger between firms A and B. Strategic effects are changes in the merging parties' behaviour along the relevant dimensions of competition (prices, quantities, quality, entry/exit, differentiation, investment) which result from merger-induced changes in ability or incentives, as predicted by economic theory supported by the case-specific evidence. The change in ownership directly generates "direct" strategic effects. Once substantiated by the parties (i.e. shown to be verifiable and merger-specific), efficiencies generate "indirect" strategic effects.

Source: BRG.

184. The Commission has shown in past cases that it can assess both short-term static effects and longer-term adverse strategic effects (e.g. within ITOH frameworks), sometimes already in Phase I. There is no principled reason to treat positive strategic effects differently. Once the relevant parameters and constraints are identified —including any efficiencies that can be substantiated—

the form of reduced product prices. The reduction in marginal costs is an efficiency. The passing on to consumers is a behaviour of the firm triggered by the efficiency. We will come back to this point below, in paragraph 240.

the same theoretical framework can be applied to assess both adverse and beneficial strategic effects, whether direct or indirect, under a common "more-likely-than-not" standard within the core SIEC analysis.

Box 1. Strategic effects versus efficiencies: stylised pharmaceutical example

To illustrate the differences between strategic effects and efficiencies, consider a merger between two pharmaceutical firms, A and B, each marketing a patented drug in the same therapeutic area and each holding a promising pipeline project.

Direct strategic effects (from the change in ownership)

- As a direct consequence of the merger, by internalising competition between their products, the combined firm may adjust prices, redirect marketing efforts or reallocate R&D budgets towards more promising therapies.
- These effects arise automatically from the change in ownership and can be predicted using economic frameworks given the case-specific information and the facts of the case (product overlaps, competitive interactions and the capabilities of the merging firms).

Efficiencies and indirect strategic effects

- The merger may also generate cost synergies—for example, by consolidating R&D laboratories, sharing clinical trial infrastructure or optimising manufacturing and distribution.
- If substantiated by the parties (i.e. shown to be verifiable and merger-specific), these efficiencies change key parameters of the post-merger environment (marginal, fixed or capital costs).
- In this way, they can induce further changes in behaviour (e.g. expanding trial size, speeding up development or lowering prices) which are indirect strategic effects triggered by the merger through the efficiencies channel.

185. The following sections outline how the Commission could adjust its analytical and procedural framework to better account for dynamic competition and ensure merger control serves its core objective.

4.1 Adapting the European merger control framework to capture dynamic effects

186. To address the limitations of the Commission's current approach to the assessment of horizontal mergers, we propose a revised framework structured around the following steps:

- Step 1: identify the relevant dimensions of competition in the markets concerned, both static and dynamic, together with the relevant market characteristics that shape competition along those dimensions;

- Step 2.a: formulate and assess theories of competitive effects along each dimension of competition, including both adverse and beneficial effects; and
- Step 2.b: consider merger-specific efficiencies; these are changes in parameters such as reductions in marginal, variable or fixed production or investment costs.

187. In this structure, Step 2.a focuses on strategic effects along the dimensions of competition identified in Step 1. In the first instance, this assessment will naturally focus on *direct* strategic effects. These are ones that arise directly from the change in ownership itself. These effects (e.g. classic unilateral price effects, innovation diversion or demand expansion mechanisms) should be derived from the relevant economic models discussed in section 3, informed by the merger rationale and evaluated under the usual "more-likely-than-not" standard on the basis of the available evidence.

188. Step 2.b concerns efficiencies and the *indirect* strategic effects they generate. In this step, the merging parties substantiate merger-induced parameter changes (e.g. cost reductions, investment synergies or enhanced capabilities) under a proportionate standard (verifiability and merger-specificity[24]). Once substantiated and established, these parameter changes become inputs into the same strategic-effects analysis carried out in Step 2.a, as they modify the parties' ability or incentives and thereby generate indirect strategic effects that must be considered alongside the direct ones. Direct and indirect strategic effects ultimately should be assessed under the same evidentiary standard in the SIEC analysis. The only difference is in how their corresponding underlying parameter changes are established: for indirect effects, the merging parties must substantiate the change; for direct effects, the change is the merger itself.

189. Steps 2.a and 2.b should not be understood as necessarily sequential. In practice, the assessment of strategic effects is iterative. The Commission may first form a preliminary view on direct strategic effects based on the economic literature, the merger rationale and the absent-merger scenario. It may then refine that view as efficiency claims are substantiated. Where efficiencies are central to the case and can be supported early by credible evidence early on the process, they should be accounted for as early as possible (including in Phase I) since they shape the relevant strategic effects. Where the evidence needed to establish the existence and nature of efficiencies requires more extensive investigation, refinement of the assessment of direct strategic effects can progress faster than the assessment of indirect effects.

190. What matters is not the formal sequencing of "Step 2.a" and "Step 2.b" but the continuous updating of the assessment as information accumulates so that all strategic effects—direct and indirect, static and dynamic, pro- and anti-competitive— ultimately are evaluated together under the same standards within a single, coherent SIEC framework.

4.1.1 Step 1 – Identify the relevant dimensions of competition

191. The first step in merger assessment is to understand how competition operates in the industry concerned. This involves identifying the static and dynamic dimensions along which firms

[24] See footnote 22.

compete, as well as market characteristics that shape their decisions. Identifying such dimensions is a prerequisite to assess how a merger might affect competition.

192. Static dimensions relate to short-term variables (e.g. prices, quantities or service quality) within the existing technological and product environment. They reflect the market's current equilibrium. Dynamic dimensions, by contrast, concern prospective and forward-looking decisions that influence future outcomes (e.g. entry, repositioning or investments in new products and technologies). These choices often involve uncertainty and shape how static competition evolves over time. Decision-making along these dynamic dimensions will often be immediately affected by a merger, but the effect on consumers will materialise over a longer time horizon.[25]

193. Static competition is enhanced when firms lower prices, expand output or improve quality. Dynamic competition is strengthened when firms invest more, enter markets or invest to create new products or differentiate existing ones. Importantly, investment alone does not constitute dynamic competition; firms compete dynamically only when their investments are aimed at developing new products or services or improving the quality of existing products or services and challenge their rivals' current or future offerings.[26] In practice, markets often exhibit both static and dynamic competition. Their relative importance depends on technological possibilities and consumer preferences.

194. The economic literature identifies four main dimensions of competition:

    i. **Static variables** such as prices, quantities and service conditions which capture how firms compete in the short run given existing products, capacities and technologies;

    ii. **Entry and exit** (dynamic), referring to firms' decisions to enter, expand, contract or leave the market, which determine how the market structure evolves over time;

    iii. **Strategic positioning and differentiation** (dynamic), including decisions on product characteristics and quality attributes as well as components such as branding strategies, business model adaption and geographic location, which define the degree of substitutability and closeness of competition among firms; and

    iv. **Investment** (dynamic), encompassing longer-term decisions on capacity expansion, technological upgrading/improvement and R&D on new products or technologies, which shape future competition and market attractiveness to consumers but also influence rivals; strategic responses, market dynamics and the overall trajectory of innovation in a sector.[27]

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[25] In our distinction between strategic effects and efficiencies, it is important to note that a strategic effect (whether direct or indirect) along a dynamic dimension of competition can change the parameters of future market environment, thereby creating long-run strategic effects, potentially along other dimensions of competition.

[26] As explained in section 3.2.1 in this report, we use the term "investment" to refer to all types of current expenditures aimed at increasing future profits. Crucially, this includes investment in the creation of new products, services, attributes or technologies, which are typically referred to as "innovation".

[27] Investment is first and foremost a (dynamic) dimension of competition. As such, a merger may change the parties' ability or incentives to invest (a strategic effect). When the merger is also claimed to make investment itself cheaper or less risky—for example through "investment synergies"—that cost reduction is an efficiency which, once substantiated, becomes an input into the analysis of strategic effects on investment. In turn, those investments can generate additional long-run efficiencies if they lower future marginal costs, which can then generate long-run strategic effects on prices.

4.1.1.1 *The Commission's current approach and its limits*

195. The HMG do reference these dimensions of competition, but they often inaccurately reflect how they should be integrated into the overall analysis. Two main issues with the way the dimensions and mechanisms of competition are set out in the HMG permeate the Commission's practice.

196. First, the HMG place strong emphasis on static dimensions of competition—particularly prices. This is evident in the use of "*increased prices*" as shorthand for the "*various ways in which a merger may result in competitive harm*".[28] While this terminological simplification is intended to facilitate the exposition, it also suggests incorrectly that firms primarily compete on price, regardless of the industry. Often, firms compete across multiple static and dynamic dimensions, and mergers affect these dimensions through different mechanisms. The "*increased prices*" shorthand tends to obscure the multifaceted nature of competition and downplay dynamic factors.

197. Second, the HMG consider core competitive variables such as entry, repositioning and differentiation or investment as mere "countervailing factors". However, these should be recognised as dimensions of competition in their own right, delivering direct and tangible benefits to consumers.

198. We now highlight the limitations of the current HMG and of the Commission's approach in identifying and integrating the relevant dimensions of competition described above.

199. **Static variables.** As already noted, the Commission's current practice places strong emphasis on static dimensions of competition—chiefly, prices—and on structural indicators such as market shares and concentration measures. While these indicators may indeed be informative in markets where static price competition for homogenous products is the predominant competitive force, they do not constitute good proxies for competitive intensity, diversion patterns or market power in other cases.

200. **Entry and exit.** The current HMG do not treat entry as a dimension of competition but only as a factor that may offset anti-competitive effects, provided that it is "likely, timely, and sufficient". The Commission assesses the likelihood of entry based on its profitability under existing market conditions and its assessment of the importance of barriers to entry. It will usually consider that entry is timely if it can occur within two years. However, the mere *potential* for entry can exert a disciplining effect on incumbents even when it is only a credible threat, a feature captured by the concept of contestability (i.e. the extent to which the threat of potential entry disciplines the behaviour of incumbent firms, even when such entry does not actually occur).

201. **Strategic positioning and differentiation.** The HMG's current approach offers an incomplete view of these variables. Differentiation and repositioning can be seen as supply-side responses to competitive pressure, reflecting deliberate strategic choices by firms that shape how they compete in the market. They may sometimes involve investment but need not be conceptualised as such: repositioning through adjustments in product attributes, quality or geographic location is often a short- to medium-term strategic choice rather than a longer-term investment decision. The

[28] HMG, para. 8.

merger may therefore have strategic effects on these dimensions which should be analysed as part of the core competitive assessment, not merely as ancillary modifiers of price outcomes.

202. **Investment.** Although the HMG acknowledge that mergers can have both positive and negative effects on investment, investment is not treated with the importance or granularity it deserves. The economic literature shows that "investment" is not a single variable but a broad category that encompasses a wide variety of decisions, such as incremental quality improvements, radical innovation, cost-reducing process R&D, demand-enhancing product development and technological upgrades. These decisions correspond to multiple mechanisms and cannot be meaningfully reduced to a single statistic or presumed to move in the same direction across all cases.

203. The current HMG nevertheless subsume these varied and complex mechanisms under the generic shorthand of "*increased prices*". This approach is misleading. The drivers that determine investment responses are fundamentally different from those that govern static price effects. Investment therefore cannot be seen simply as another channel of price effects.

204. These conceptual shortcomings spill over into the treatment of investment as a dimension of competition in the Commission's case practice—specifically, through structural indicators of static competition (market shares, concentration metrics) for the characterisation and assessment of investment competition and investment incentives post-merger. The link between market shares and competitive effects is weak to non-existent in investment-driven or dynamic industries, where rivalry occurs through product development and technological advances rather than static price competition. In such markets, competitive advantage is fluid and transient, shaped by firms' ability to adapt and innovate over time. Structural metrics say little about these processes: they measure the outcome of past competition, not the mechanisms that will determine future rivalry.

4.1.1.2 *Recommendations*

205. The first step in assessing a merger should be understanding how competition materialises in the case at hand and identifying the most relevant dimensions of competition. This is equivalent to determining the main drivers of consumer welfare over the long run. These drivers reflect both demand-side factors (e.g. customers' preference and valuation of quality and other product characteristics) and supply-side ones (e.g. investment in development of new products or improvement of existing ones, strategic differentiation). They are different in industries where products are highly differentiated, where heavy investments in infrastructure are required or where new products are introduced at a fast pace. The assessment of horizontal mergers should consider such industry-specific characteristics and avoid a one-size-fits-all approach that relies on the same structural measures regardless of the actual way in which competition unfolds in the markets in question.

206. The HMG should explain the evidentiary basis on which the Commission identifies relevant dimensions of competition, including the indicators it will examine, sources of information it will rely on and illustrative examples showing how this assessment is conducted in practice. The

assessment must consider the historical dynamics of the market, business strategies of the firms involved and how customers perceive competition in the market, as detailed next.

207. **Historical perspective.** The Commission could look at historical market data to identify how frequently and for how long the competitive environment remains stable. Market stability is central to the relevance of static competitive variables such as price and quantity. As explained above, static competition materialises itself given the current technological and product environment. In this way, a constantly changing environment is more indicative of dynamic rather than static competition. In dynamic markets, competition occurs through product development, technological advances, strategic repositioning and the ability of firms to anticipate and respond to changing market conditions rather than static price competition.

208. If in the historical review any changes to the market environment are identified, the Commission must classify them according to one of the three dimensions set out above: entry and exit, differentiation and repositioning, or investment. This historical analysis requires a review of the following areas:

- The history of firms entering and exiting the market;
- The history of products in the market;
- The history of salient features of the products in the market, where "salience" could be identified by whether these features are prominently announced/promoted in advertising campaigns;
- The evolution of sales of the different products, with a focus on differences in sales potentially stemming from differences in the product attributes mentioned in the previous point;
- The size of previous investments in the development of new products or new product attributes;
- The evolution of prices, with a focus on whether (i) they track closely the evolution of key input prices, (ii) prices across firms move closely together and/or (iii) discounts and promotions are frequent and significant—all three points being indicative of price being an important dimension of rivalry.

209. **Business strategy.** The Commission could analyse the merging parties' internal business documents to understand how they themselves perceive competition in the markets in question and which variables they consider most relevant for driving performance. Simple natural language processing tools (e.g. word clouds or frequency analysis) can help identify which concepts and variables are most salient in these materials. In particular, the assessment could consider some of the following:

- How management describes the main drivers of sales growth, profitability and market share (e.g. price, quality, innovation, branding) and the relative importance attached to each of them.

- Internal documents on price and quality setting, product launches, branding and repositioning decisions (including board papers and strategy presentations).
- Which products and firms are repeatedly identified as the closest competitors or as "main rivals" in internal documents and business intelligence reports; and what makes them so.
- How management articulates the relationship between investment (e.g. R&D, capacity, marketing, infrastructure) and sales or market share growth; and whether investment is primarily aimed at cost reduction, quality improvement or new product or technology development.
- How the parties assess the likelihood and impact of entry or expansion by competitors, including which potential entrants or existing rivals are viewed as the most significant threats.

210. **Consumer perspective.** Lastly, the Commission could assess how customers perceive competition in the market. This includes:

- Customers' valuation of different product characteristics, including the extent to which quality informs their purchase choices. This can be evaluated using customer surveys, which capture customers' stated preferences, or ex post case studies, which examine their observed behaviour.
- The monetary value assigned by customers to improvements in product quality. This can be assessed through:
    - Customer surveys in which the Commission asks how much more customers would be willing to pay for specific quality improvements, such as greater reliability or new or improved features.
    - Ex post analyses aimed at determining the price premium paid by customers when a firm introduces a higher-quality version of a product.
- Customers' perceptions of potential entrants into the market and which firms they consider to be close or distant competitors to the incumbents. This can be evaluated through customer surveys.
- Trends in consumer preferences and behaviour towards products, attributes and brands.
- Customers' willingness and value to adopt entirely new products or enter new markets, capturing how innovations or novel offerings may change competitive dynamics and create new market spaces.

211. Once the relevant dimensions of competition have been identified, the Commission should then assess the market characteristics that shape behaviour along each identified dimension. When price competition is central, cost parameters may be the most relevant characteristics. When

dynamic rivalry matters, the assessment should consider factors such as the likelihood of (and barriers to) entry, the strength of network effects, the structure of ecosystems, switching costs, the sector-specific rate of technological change and financial constraints. These characteristics determine how firms choose and adjust their competitive variables.

212. Naturally, not all variables and factors are relevant in all cases. Their relevance depends entirely on the nature of the products, the preferences of demand, technological possibilities, the relevance of technological know-how and expertise, and the market environment, including relevant government regulation.

213. In the pharmaceutical industry, investment decisions to bring new and better products to market are among the main drivers of customer welfare and competition, as firms compete through innovation, pipeline development and portfolio strategy rather than short-run pricing alone. In infrastructure industries, such as telecoms, the availability and quality of services depend on investment decisions which drive long-term welfare effects. Even in commodity markets, investments will determine capacity which is often the main driver of future prices.

214. Consequently, the HMG should clarify that the delineation of the relevant parameters of competition in the case at hand (i.e. those that affect consumer welfare) should be the starting point of the assessment.

Box R.1. Recommendations for the future EC HMG regarding the characterisation of competition in the case at hand

- Identify the set of relevant dimensions of competition: The HMG should explicitly set out the potential dimensions of competition that the Commission will consider and make clear that the first step of the assessment is to determine which dimensions matter in the case at hand.
- Require explicit articulation of how competition works in the case at hand: The HMG should indicate that the assessment will spell out, in each case, both the (i) dimensions along which firms actually compete and (ii) market characteristics that shape rivalry along those dimensions.
- Specify the types of evidence used to identify relevant dimensions: The HMG should explain the evidentiary basis on which the Commission identifies relevant dimensions of competition, including the indicators it will examine, sources of information it will rely on and forms of evidence it would deem adequate to substantiate specific claims made by the parties.

4.1.2 Step 2.a – Formulate and assess dimension-specific theories of competitive effects

215. After identifying the relevant dimensions of competition and corresponding market characteristics, the Commission should then explicitly articulate theories of *competitive effects*—as opposed to theories *of harm*, as is currently the case—along each of the identified dimensions.

216. In our framework, Step 2.a focuses on the assessment of strategic effects—that is, merger-induced changes in the parties' behaviour along those dimensions, driven by changes in their ability or incentives. In the first instance, this assessment will naturally centre on *direct* strategic effects which follow directly from the change in ownership given the prevailing parameters (e.g. costs, technology, products, demand, regulatory and financial conditions). As the case progresses and further information becomes available—including, where relevant, substantiated efficiencies—this assessment should be refined to incorporate the additional *indirect* strategic effects they generate.

217. The identification of plausible strategic effects, whether positive or negative, should be guided primarily by economic theory and available case-specific evidence. For each relevant dimension of competition, the Commission should rely on the literature to map out the set of plausible mechanisms that affect consumer welfare following the merger-induced changes in ability and incentives (e.g. unilateral price effects, investment diversion, demand expansion effects, etc.). These theoretical mechanisms should then be confronted with case-specific evidence, including the merger rationale which indicates what the parties themselves expect to change in their conduct. In this way, the theories of competitive effects are grounded in established economic mechanisms but tailored to the economic and legal context of the specific transaction.

218. The Commission must evaluate both negative and positive strategic effects within the same analytical framework and under the same evidentiary standard. Positive strategic effects—including potential increases in investment, repositioning or entry ability or incentives—arise from the same economic principles as adverse effects. Both negative and positive strategic effects should therefore be examined within the core SIEC assessment; positive direct strategic effects should not be relegated to a subsequent efficiencies stage to be assessed under an efficiencies standard of proof. This would ensure a balanced and symmetric evaluation of merger outcomes and avoid the current asymmetry whereby anti-competitive effects are presumed based on (inadequate) structural parameters, while conceptually equivalent pro-competitive ones must be demonstrated under a high standard of proof.

4.1.2.1 *The Commission's current approach*

219. The current HMG structure the competitive assessment around two main categories of theories of harm through which horizontal mergers may significantly impede effective competition.

220. The first is **non-coordinated (or "unilateral") effects**, where the elimination of competition between the merging firms strengthens the merged entity's ability and incentive to raise prices, reduce output, diminish quality or choice, decrease investment or otherwise worsen competitive parameters "unilaterally"—that is, without need of coordinating its behaviour with its competitors.

221. The second is **coordinated effects**, where the merger increases the likelihood, stability or effectiveness of tacit coordination among the remaining firms, enabling them to jointly harm effective competition, for example by sustaining prices above competitive levels.

222. For each of these two broad categories, the HMG provide a conceptual framework and list qualitative factors that may make the risk of SIEC more plausible.

223. For **non-coordinated effects**, the HMG highlight (i) high market shares, (ii) closeness of competition between the merging firms, (iii) limited switching possibilities for customers, (iv) capacity constraints of competitors, (v) the ability and incentive of the merged entity to hinder the expansion of rivals (for instance through control of key inputs, IP or interoperability constraints) and (vi) the elimination of an important competitive force, including a potential entrant or a pipeline innovator.

224. For **coordinated effects**, the HMG build on the classical three-pillar framework of sustainability of coordination: (i) the ability of firms to reach and monitor a common understanding, (ii) the existence of credible retaliation mechanisms and (iii) the absence of effective disruption by outsiders (entry, fringe rivals or customers). The HMG also refer to structural features conducive to coordination, such as few competitors, homogenous products, stable demand and supply conditions and high transparency.

225. The HMG further recognise that the same conceptual tools apply to mergers involving potential competition, mergers that may foreclose rivals through strengthened buyer power and mergers involving innovation, for instance when pipeline products may become close substitutes in the future.

226. However, the HMG do not set out analytical frameworks for pro-competitive merger effects. Instead, they present certain variables—namely, entry, buyer power and efficiencies—as "countervailing factors" whose role is to offset, partially or fully, anti-competitive effects previously identified under unilateral or coordinated theories of harm.

4.1.2.2 *Limits of the Commission's current approach*

227. The Commission's current approach to assess the competitive effects of mergers features several structural limitations which results in an assessment framework predisposed to identify and prioritise adverse short-term price effects while undervaluing the dynamic forces that shape consumer welfare over time.

228. First, the Commission's assessment remains strongly oriented towards short-term, static dimensions of competition, especially prices, regardless of whether these dimensions are the primary drivers of long-term consumer welfare. The authority's cautious, risk-averse approach to forecasting future market developments causes the analysis to place disproportionate weight on effects that are highly probable and likely to materialise in the near term while discounting longer-run dynamic effects such as innovation, investment, entry or product repositioning. While these effects unfold over longer horizons and may be more uncertain, changes in firms' incentives occur immediately after the merger and are often important drivers of consumer welfare.

229. Second, the approach focuses predominantly on adverse strategic effects. A clear illustration of this is the fact that section IV in the HMG is titled "*Possible anti-competitive effects of horizontal mergers*", but there is no section on "Possible pro-competitive effects of horizontal mergers". The HMG only mention these effects as "countervailing factors". What is more, the merger effects are commonly referred to as "theories of harm" rather than "theories of competitive effects". Yet the same economic principles put at work in the theories "of harm" show that mergers can generate

pro-competitive strategic effects—for instance, by internalising innovation spillovers, reducing duplication, improving coordination of R&D efforts or relaxing financial constraints. The HMG should therefore consider both positive and negative strategic effects symmetrically and within a single analytical framework.

230. This dual bias—towards the short term and adverse outcomes—systematically understates the contribution of dynamic dimensions of competition and risks resulting in the prohibition of mergers that would enhance consumer welfare in the medium and long runs. The Commission's approach features an asymmetric evidentiary standard, whereby potential anti-competitive effects are evaluated under a "more-likely-than-not" standard (often presumed based on inadequate structural parameters), but potential pro-competitive effects are treated as efficiencies and must satisfy far stricter criteria (merger-specificity, verifiability and timely consumer benefit).

231. Including all relevant factors at the same time ensures that the assessment focuses directly on whether the merger is likely to lead to a SIEC, rather than first identifying harm and later correcting it with an inadequate standard. While countervailing efficiencies can be brought in at the end of the "anti-competitive" analysis of unilateral price effects, it comes at a cost. Bringing them in only at a late stage forces them to counterbalance a pre-established narrative of harm, rather than allowing them to shape the analytical framework from the outset. This sequencing risks treating efficiencies and other pro-competitive factors as after-the-fact corrections instead of integral components of the competitive assessment, particularly for dimensions of competition that cannot simply be netted out against expected price increases. Entry, for example, does not easily translate into an offsetting price factor that can be trivially subtracted to an otherwise positive price effect. If entry conditions fundamentally determine the competitive pressure in a market, they must be integrated at the start of the analysis, not treated as an *ex post* correction.[29] The same observation applies to the other dynamic dimensions of competition: differentiation and repositioning and investment. Analysing these factors late in the process risks producing a conceptually inconsistent and inefficient assessment.

[29] If entry is a relevant disciplining force—because barriers are low and firms can expand or enter at relatively low cost—then even the analysis of unilateral price effects must look different from the beginning. High post-merger market shares, by themselves, are no longer strong evidence of a high likelihood of price increases: any attempt to sustain supra-competitive prices would quickly attract entry or expansion. The situation is analogous to trade-exposed markets with low import barriers: concentrated domestic structures may coexist with strong competitive pressure from imports, and the only way for domestic firms to keep entrants out is to keep prices low. A merger that does not materially worsen entry conditions in such a setting is much less likely to generate durable unilateral price effects, regardless of static shares. Consistent with this logic, strong potential entry pressure should also be reflected in relatively low margins for incumbents. If margins are properly measured at the outset, tools such as GUPPI will already internalise the disciplining effect of entry: low pre-merger margins imply a limited incentive to raise prices post-merger. In such markets, the theory of harm therefore should focus primarily on whether and how the merger changes entry conditions themselves, rather than on structural indicators computed under an implicit "no-entry" assumption.

Table 1. The Commission's current assessment of long- and short-term effects of merger

	Anti-competitive effects	Pro-competitive effects
Short-term effects	• The Commission's focus. • Assessed under a "more-likely-than-not" standard. • Dominated by structural indicators.	• Brought forward by the parties. • Assessed under the efficiencies standard. • Considered as countervailing factors only after a risk of a SIEC along the price dimension has been found.
Long-term effects	• Considered by the Commission when investment is a relevant dimension of competition. • Assessed under a "more-likely-than-not" standard. • Negative bias on mergers between innovators, contrary to the literature.	• Brought forward by the parties. • Assessed under the efficiencies standard (if considered "timely"). • Even weaker consideration than short-term, given the Commission's short-term bias.

Source: BRG.

Box 2. Positive (pro-competitive) strategic effects identified by the academic literature

The economic literature reviewed in section 3 documents contexts in which mergers can generate positive strategic effects, improving consumer welfare.

Effects on investment. Mergers can increase investment incentives by internalising positive externalities between the merging firms' investment activities. When research efforts are duplicative or generate knowledge that benefits rivals, a merger can enable the combined firm to concentrate resources on the most promising projects, potentially raising total investment and innovation output (Denicolò and Polo, 2018). Similarly, mergers between firms with complementary technological or organisational capabilities can enhance R&D productivity and risk-sharing, improving the efficiency of innovation processes (Shelanski and Katz, 2006; Teece et al., 1997).

In dynamic and capital-intensive industries, higher post-merger margins (e.g. because fixed costs are spread over a larger customer base) increase expected returns from demand-expanding investments, increasing the incentives to undertake them. This can offset or even outweigh negative short-term price effects on consumer welfare by leading to a wider network coverage and higher-quality and/or entirely new products, thereby generating long-run benefits for consumers (Bourreau and Jullien, 2018).

A merger to monopoly may increase incentives to invest in new product development when the new products exhibit low differentiation, as the merged firm's enhanced ability to coordinate prices may outweigh the negative effect of internalising innovation externalities (D'Annunzio et al., 2025; Moraga-González and Motchenkova, 2026).

Market-structure-related effects. Mergers can also strengthen competition by altering market structure in ways that enhance the viability of competitors or expand market coverage. When the input market for intermediaries is concentrated and diversion between intermediaries is

low, a merger among them may lower downstream prices by improving efficiency and bargaining power vis-à-vis upstream suppliers (Dranove et al., 2019).

In markets with network effects, particularly in digital platforms, mergers can help smaller firms achieve the critical mass needed to compete effectively against dominant incumbents. By combining user bases and complementary functionalities, such mergers can make "runner-up" platforms viable challengers, thereby increasing overall market competition (Argentesi et al., 2021).

In differentiated-goods industries, mergers between close competitors can lead to product repositioning: the merged entity may position its products further apart to avoid cannibalisation, while rivals reposition between them. This process increases market coverage and may enhance consumer choice (Gandhi et al., 2008).

Financial constraints and resource-allocation effects. Mergers can relax financial constraints, enabling financially constrained targets to pursue valuable projects that would otherwise be abandoned. When the acquirer is financially healthy, it can act as a liquidity provider, funding profitable R&D or expansion projects that sustain market output (Almeida et al., 2011).

By pooling cash flows from multiple projects, mergers reduce default risk and lower the cost of capital, allowing firms to sustain higher levels of investment (Lewellen, 1971). Similarly, internal liquidity reallocation within the merged entity can direct resources towards more productive uses or cross-subsidise profitable projects that would not be pursued if the standalone merging party had to fund them externally (Cestone and Fumagalli, 2005).

4.1.2.3 *Recommendations*

232. To overcome these limitations, the HMG should make it explicit that, for each dimension of competition identified as relevant in the first stage of the assessment, the Commission will articulate a specific, coherent theory of competitive effects—accounting for both pro- and anti-competitive strategic effects—grounded in the underlying economic mechanisms. Accordingly, the concept of a SIEC should be interpreted in an industry-specific manner, not exclusively in terms of price outcomes. Doing so requires abandoning the current "*increased prices*" shorthand in paragraph 8 and adopting a framework that explicitly recognises the multiplicity of mechanisms through which mergers affect consumer welfare along static and dynamic dimensions of competition.

233. The effects of the merger should then be assessed symmetrically: if the merger alters firms' ability or incentives to compete along a given dimension, the direction of that change—pro- or anti-competitive—must be established within a single, consistent framework that considers all relevant strategic effects, both direct (stemming from the change in ownership) and indirect (arising from substantiated efficiencies). Crucially, relevant variables and mechanisms should be integrated into the analysis from the outset and progressively refined as additional information is gathered, rather than being introduced later as merely "countervailing factors".

234. The robust assessment should therefore

- Consider all relevant competitive dimensions identified at the first stage of the analysis;
- Articulate a clear theory of competitive effects for each of the identified dimensions based on the relevant economic literature and merger rationale;
- Evaluate pro- and anti-competitive strategic effects together, within a unified conceptual framework that incorporates all relevant variables (including those affected by substantiated efficiencies) rather than treating them as add-ons; and
- Ensure that the analytical standards are consistently applied across all dimensions of competition, assessing pro- and anti-competitive strategic effects under the same standard of proof.

235. Recognising and systematically analysing positive strategic effects within the main competitive assessment would not imply a presumption of pro-competitiveness, but rather a balanced and case-by-case approach. Embedding this symmetry in the HMG would align merger control with modern economic understanding and ensure that enforcement captures both the risks of anti-competitive harm and the potential for dynamic gains that ultimately benefit consumers.

Box 3. The case of strategic effects on investment

In sectors in which investment represents an important dimension of competition, the Commission should assess in a unified manner whether the transaction is likely to strengthen or weaken the parties' ability or incentives to invest by considering all the mechanisms—pro- and anti-competitive—through which investment may be affected. The current approach tends to presume a negative relationship between mergers and investment, as illustrated by the example that "*effective competition may be significantly impeded by a merger between two important innovators, for instance between two companies with 'pipeline' products related to a specific product market*".[30] In contrast to this presumption, Denicolò and Polo (2018), for example, show that the merged entity may shut down the least promising project to avoid duplication, while increasing total investment (in the remaining one), thereby increasing consumer welfare.

More broadly, the effect of mergers on investment depends critically on the type of investment involved and market characteristics. An economics-based assessment should therefore consider: (i) the type of investment involved (e.g. new product development versus marginal improvements; cost-reducing versus demand-enhancing investment), (ii) the externalities generated in the absence of the merger (such as positive/negative investment diversion or knowledge-spillovers), (iii) how the changes in investment incentives interact with other likely merger effects (such as with unilateral price effects, resulting in the margin expansion and demand expansion effects on investment), and (iv) the market characteristics that shape these incentives and the ability of firms to undertake these projects, including the number of

[30] HMG, para. 38.

innovators, technological opportunities, the presence of barriers to entry (such as network effects) and financial constraints.

Box R.2.a. Recommendations for the future EC HMG regarding the assessment of strategic effects

- **Abandon the "*increased prices*" shorthand:** The revised HMG should abandon paragraph 8's use of "*increased prices*" as a generic proxy for all merger harm. Instead, the different channels through which a merger may affect consumers (prices, quality, variety, investment, entry, etc.) should be explicitly identified and analysed on their own terms.
- **Require dimension-specific theories of competitive effects:** The HMG should indicate that the Commission will articulate, for each identified relevant dimension of competition, a clear theory of competitive effects (harm and benefit), grounded in the economic mechanisms that operate along that dimension. For dynamic dimensions of competition, this additionally implies extending the time horizon for the assessment in line with industry investment cycles and entry/exit patterns.
- **Mandate a symmetric assessment of pro- and anti-competitive strategic effects:** The HMG should explicitly provide that the Commission will assess both positive and negative strategic effects—whether direct or arising indirectly via substantiated efficiencies—within a single analytical framework and under the same evidentiary standard, rather than treating positive strategic effects as secondary, "countervailing" considerations.

4.1.3 Step 2.b – Consider potential efficiencies

236. Efficiencies are merger-induced changes in the underlying parameters of the competitive environment, such as marginal, variable or fixed costs, risk premia or technological and organisational synergies in production, sales, distribution or investment. They trigger relevant changes, primarily related to the ability of the merging firms to undertake a certain action or engage in a certain commercial behaviour (e.g. by expanding their feasible set of cost-effective prices, qualities or investment plans).

237. In this way, efficiencies generate indirect strategic effects. For this reason, once substantiated by the parties under proportionate verifiability and merger-specificity requirements, these parameter changes should be treated as inputs into the assessment of strategic effects.

238. This distinction between efficiencies and their corresponding indirect strategic effects clarifies the role of the traditional three-prong test: verifiability and merger-specificity relate to whether the parameter changes themselves are real and attributable to the merger, whereas the requirement that efficiencies "benefit consumers" is effectively a question of pass-on, i.e. of how those parameter changes translate into strategic effects (on prices, quality, investment, etc.) within the broader SIEC analysis.

239. Efficiencies also differ from direct pro-competitive strategic effects, such as those on investment. The latter stem directly from the change in ownership and are established by economic theory. In contrast, the former must be substantiated by the merging parties.

240. Distinguishing between efficiencies and pro-competitive strategic effects is essential for ensuring that each of them is assessed under the appropriate analytical framework. Having covered direct pro-competitive strategic effects in Step 2.a, in this section we turn to the assessment of (properly and narrowly defined) efficiencies.

4.1.3.1 *The Commission's current approach*

241. Under the current framework, the Commission might clear a merger if efficiencies countervail the merger's adverse effects on competition. Efficiencies are considered only if the parties demonstrate that they are merger-specific and verifiable and benefit consumers.

242. **Merger-specificity.** Efficiencies must be a direct consequence of the merger which could not be achieved to a similar extent by less anti-competitive means (e.g. licensing agreement or contractual cooperation).

243. **Verifiability.** The Commission must be reasonably certain that the efficiencies are likely to materialise and be substantial enough to counteract a merger's potential harm to consumers. Efficiencies and the resulting benefit to consumers therefore should be quantified where reasonably possible.

244. **Benefit to customers.** The Commission requires that consumers are not worse off as a result of the merger. For this, efficiencies must be substantial, timely and, "in principle",[31] benefit consumers in the markets where the merger can harm competition. The later the efficiencies are expected to materialise, the less weight the Commission assigns to them.

245. The burden of proof for demonstrating efficiencies rests entirely on the notifying parties, which must provide the relevant evidence in due time to substantiate their claims.

4.1.3.2 *Limits of the Commission's current approach*

246. In practice, the current efficiencies framework presents a very high evidentiary standard, which is difficult for the merging parties to satisfy. As a result, efficiencies have rarely materially affected the Commission's decision on a horizontal merger.

247. **Merger-specificity**. The Commission's current interpretation of merger-specificity often disregards insights from organisational economics (see section 3.3), which identify reasons why it may not be possible to replicate the benefits stemming from integration through other mechanisms such as cooperation agreements and contracts. Yet limited consideration tends to be given to whether such alternatives to mergers would, in practice, be equally effective or even feasible.

[31] HMG, para. 79.

248. Moreover, the counterfactual scenario considered when assessing merger-specificity is often inconsistent with the counterfactual scenario considered when assessing the competitive effect of the merger. If the authority rejects merger-specificity because similar efficiencies could allegedly be achieved through cooperative agreements, then the competitive effects of the merger should be assessed against a counterfactual scenario in which such cooperative agreements would be concluded. It is inconsistent to assess efficiencies against one scenario and the competitive effects against another one.

249. **Verifiability**. The current verifiability standard is effectively tailored to short-term, price-related efficiencies and tends to dismiss benefits that materialise over longer time horizons. The length of time for efficiencies to materialise, however, should not be confounded with the likelihood of them occurring. For example, it may take a long time to integrate two production sites and generate the associated cost efficiencies, but this does not imply that concrete plans to conduct such integration do not meet the verifiability criteria. This should be distinguished from situations where there is high level of uncertainty about the feasibility and costs of achieving efficiencies.

250. **Benefit to customers**. The Commission's requirement that efficiencies must, "in principle", benefit consumers in the same relevant market where competitive harm is alleged effectively excludes out-of-market efficiencies.[32] The exception is in the cases in which the benefits do not arise in the affected markets, but they cover "substantially the same" customers otherwise harmed by the merger.[33]

251. The Commission defends this restriction by arguing that it should not make redistributive choices between consumer groups. However, when a merger generates gains for some consumers and losses for others, any decision has redistributive consequences. Allowing the merger results in welfare being redistributed from the second group to the first; prohibiting it results in welfare being redistributed in the opposite direction. Either way, some customers become worse off and others better off, an unavoidable consequence.[34] The ultimate objective of the competitive assessment should therefore be to maximise overall consumer welfare, not welfare for specific groups.

4.1.3.3 *Recommendations*

252. Efficiencies first should be clearly distinguished from pro-competitive strategic effects. The revised HMG should make this conceptual boundary explicit: efficiencies, as parameter changes, should remain countervailing factors, demonstrated primarily by the merging parties; pro-competitive direct strategic effects such as those on investment, as behavioural changes, belong

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[32] The question of out-of-market efficiencies is also highly relevant for the assessment of non-economic merger effects, including sustainability, environmental impact, resilience and other societal benefits. By the very nature of these effects, the group of beneficiaries of such effects is larger than the customers in the relevant market. If out-of-market efficiencies are excluded by design, it becomes nearly impossible to factor these non-economic benefits into merger assessment in any meaningful way.

[33] See, for example, the European Commission's *Competition Merger Brief* 2/2023 (September), Article 1, p. 5. This logic is also found in the Article 101(3) Guidelines, Communication from the Commission, Guidelines on the application of Article 81(3) of the Treaty (2004). In para. 43, they state that "*where two markets are related, efficiencies achieved on separate markets can be taken into account provided that the group of consumers affected by the restriction and benefiting from the efficiency gains are substantially the same*".

[34] The difference between the two decisions is that one results in a redistribution of existing welfare while the other results in the redistribution of potential welfare. Accepting the second type of redistribution while rejecting the first reflects a status quo bias, which favours customers that stand to lose from a merger at the expense of those that stand to gain.

within the core competitive assessment and should be analysed symmetrically with anti-competitive effects. Moreover, once efficiencies have been established, the strategic implications of those parameter changes (their indirect strategic effects) should be integrated into the SIEC assessment and evaluated under the same evidentiary standard as other strategic effects.

253. Given the distinction between efficiencies and direct pro-competitive strategic effects, the three-prong test currently applied to efficiencies should apply only to true efficiencies, not to direct strategic effects. For efficiencies, the Commission should retain a rigorous but more realistic application of the three criteria, as we specify next. In particular, the "benefit to consumers" limb of the test should be implemented through the assessment of pass-on within the strategic-effects framework, rather than as an additional, stricter hurdle applied separately to efficiencies.

254. **Merger-specificity.** The approach to merger-specificity should be based on business realities and assume that the merging parties behave rationally. This implies that there should be a presumption that, in competitive markets, firms have strong incentives to reduce costs absent a merger. Then, if efficiencies are achievable through integration, they should be presumed merger-specific unless the Commission demonstrates credible alternative means. Alternatives should be grounded in market reality and not be mere hypothetical scenarios. Insights from organisational economics (see section 3.3) can help assess whether efficiencies are genuinely unattainable through looser forms of cooperation.

255. **Verifiability.** The revised HMG should adopt a more flexible verifiability standard that distinguishes between short-run, price-related cost efficiencies and longer-term efficiencies related to dynamic dimensions of competition, such as investment. For such longer-run efficiencies, the Commission should accept a broader range of evidence—including qualitative evidence and internal business documents such as quantitative modelling and projections prepared for the purposes of the transaction (e.g. business plans and board presentations)—recognising that these benefits cannot be verified with the same level of precision as short-run cost efficiencies. A more flexible verifiability standard is therefore essential to ensure that long-term, welfare-enhancing efficiencies are not systematically disregarded.

256. **Benefit to customers.** The revised HMG should adopt a broader and economically grounded conception of "benefit to consumers". The requirement that the beneficiaries of efficiencies be "*substantially the same*" as the consumers allegedly harmed should be abandoned. Instead, the Commission should assess consumer benefits on an aggregate basis, recognising that redistribution is unavoidable in merger control and that the relevant question is whether the merger increases *overall* consumer welfare. This broader interpretation must explicitly allow for out-of-market efficiencies, as well as medium- to long-term gains (applying a relevant discount factor). The HMG should therefore make clear that the purpose of merger control is not to preserve the status quo but to maximise consumer welfare over the long run—even when doing so implies that different groups of consumers benefit from the merger in different markets or at different times.

257. The benefits to consumers normally will be assessed using the same quantitative tools developed for the assessment of strategic effects. For instance, if the merger leads to a decrease in marginal costs, this decrease can be used as an input in the quantitative model to assess short-term price

increase (e.g. UPP, pricing econometric model, demand estimation). For instance, if the merger leads to fixed cost savings alleviating the parties' credit constraint, this should be assessed using the tools developed for the assessment of the merger's investment strategic effects (accounting for the financial channels described in section 3.4).

Box R.2.b. Recommendations for the future EC HMG regarding the treatment of efficiencies

- **Distinguish clearly between efficiencies and strategic effects:** The HMG should explicitly define efficiencies as merger-induced parameter changes, separate from strategic effects, which reflect changes in firms' ability and incentives.
- **Limit the three-prong efficiency test to genuine efficiencies:** After distinguishing between efficiencies and direct positive strategic effects, the HMG should specify that only the former falls under the current efficiencies framework.
- **Adopt a realistic, business-grounded notion of merger-specificity:** The HMG should presume that efficiencies are merger-specific, unless the Commission can point to a credible real-world alternative to the concentration. Hypothetical contractual arrangements should not suffice.
- **Allow a flexible timeframe for verifiability:** The HMG should recognise that long-run efficiencies (especially investment-related) cannot be verified ex ante with short-term precision. Allow qualitative and forward-looking evidence consistent with industry investment cycles.
- **Use a broader, welfare-based notion of consumer benefit:** The HMG should replace the "substantially the same" requirement with an aggregate consumer-welfare assessment that allows for out-of-market efficiencies and medium- to long-term gains to be considered.

4.2 Methodological and procedural aspects of the proposed approach

258. The purpose of merger control is to assess whether a concentration is likely to result in a SIEC. A SIEC is, at its core, a *strategic effect* arising from a change in asset ownership that modifies firms' ability or incentives along a dimension of competition in a way that harms consumers. A SIEC can be counterbalanced by offsetting efficiencies or remedied with asset divestiture and/or behavioural commitments.

259. EU merger control is structured in two stages: a preliminary assessment (Phase I), followed—where the evidence raises sufficient doubts—by an in-depth Phase II investigation. While commitments may be accepted in Phase I during the preliminary assessment, this is subject to a more demanding standard than the one that allows the Commission to go into Phase II.

260. The Commission has already demonstrated that it is able to assess long-term investment effects in Phase I (e.g. *Dow/DuPont*) when these are relevant to the likelihood of harm. If such analysis is feasible for negative effects, it should be equally feasible for positive strategic effects, with the

same standard of preliminary assessment. Likewise, the Commission cannot meaningfully accept commitments that shape firms' future incentives without first forming a preliminary view on *all* relevant strategic effects, both positive and negative.

261. Our recommendations for the future HMG imply that several analytical components currently addressed at relatively late stages of the merger assessment, specifically in Phase II, should instead be incorporated at a much earlier stage. This includes, for instance, identifying the relevant dimensions of competition relying on the historical dynamics of—as well as future outlooks for—the market, the business strategies of the firms involved and how customers perceive competition in the market, as explained in section 4.1.1.2. From there, it must formulate dimension-specific theories of competitive effects and defining the counterfactual scenario.

262. We believe that these changes can be implemented without compromising procedural efficiency, extending timelines or increasing the set of mergers subject to detailed review. On the contrary, embedding these elements early in the process will help ensure that the assessment focuses on the mechanisms that truly matter for consumer welfare while preserving procedural efficiency.

263. The following subsections explain how the procedural architecture of merger review can be adapted to accommodate this improved analytical framework without increasing the administrative burden on the Commission or on merging parties.

4.2.1 Clarify that the SIEC test includes the assessment of positive and negative strategic effects

264. A merger may generate strategic effects along any dimension that affects consumer welfare: prices, quantities, quality, entry, differentiation and repositioning, or investment. All such effects, whether they lead on balance to harm or benefit for consumers, should be subject to one all-encompassing assessment.

265. Accordingly, the Commission should conduct a symmetric assessment of all strategic effects at all stages of the analysis, first on a preliminary basis and then, if necessary, following an in-depth assessment if the establishment or the balancing of positive strategic effects cannot be concluded after the preliminary analysis. This complete and symmetric assessment must be performed before considering whether (i) adverse effects might be counterbalanced by efficiencies and (ii) concerns could be addressed through remedies. Only after the authority has identified the likely strategic effects can these subsequent steps be meaningfully undertaken.

266. Merging parties may bear the burden of proof on matters where they have superior access to information, like efficiencies or specific internal synergies, but this does not extend to strategic effects. Positive strategic effects arise from the merger's impact on ability and incentives—issues that the Commission is equally, and sometimes better, placed to evaluate using economic theory, empirical methods, internal documents and market investigations.

4.2.2 The limited role of market shares and structural indicators

267. A substantial majority of mergers do not raise competitive concerns, and an efficient system must allow to screen them out early using quick but reliable metrics. Structural indicators such as market shares and concentration indices play a legitimate role in this initial filter. Even if market shares are imperfect proxies for market structure and closeness of competition, it remains highly unlikely that a (horizontal) merger could threaten competition in a market where its market shares are below the *de minimis* threshold, or where concentration is both very low and largely unaffected by the merger. For example, a merger that does not give rise to significant market positions (e.g. below 20%) under any realistic market definition is unlikely to result in a SIEC, whereas a merger that produces very high shares under any plausible definition warrants further scrutiny. Our proposals do not change this essential screening function, which should be preserved.

268. However, structural indicators function as reliable screens only in settings where they meaningfully approximate competitive constraints—primarily non-dynamic markets with homogeneous products, stable substitution patterns and well-defined, uncontroversial relevant markets. In these cases, market shares can serve as reasonable proxies for diversion ratios and closeness of competition.

269. Outside homogeneous-goods markets, market shares rapidly lose their connection to competitive mechanisms. In differentiated goods markets, the question when assessing price effects is the degree of substitution between the merging firms' products, not the shares they hold within an arbitrarily drawn market boundary. Likewise, in geographic markets where imports are a relevant competitive constraint, treating imports as simply "inside the market" seldom captures the far more nuanced ways in which foreign competitors (even unrealised ones) can constrain domestic suppliers.

270. The disconnect is even more pronounced for investment-driven industries and the digital sector. In these settings, no structural analogue to market shares exists: investment pipelines, technological know-how, capabilities, complementarities, interoperability, single-homing and network effects do not map so naturally onto market-share or concentration thresholds. While other metrics can help assess how the merger shifts the parties' incentives (see next section), none of these—and certainly not shares of supply computed on sets of goods that cannot be considered as markets—can generate presumptions equivalent to those derived from structural indicators in static, homogeneous-goods markets.

271. Therefore, structural proxies should be used as initial filters only where their informational content is high and to determine whether an issue is worth assessing further. In all other cases, the screening stage, and even more the assessment stage, must rely on more direct indicators of substitution patterns, competitive positioning, capabilities or investment overlaps and incentives.

4.2.3 Relevant evidence for assessing strategic effects

272. Once a merger proceeds beyond the initial structural screen, the assessment must rely on evidence capable of capturing how the transaction changes firms' incentives along each relevant

dimension of competition in accordance with the theory of competitive effects put forward by the authority.

273. Because these incentives differ across industries and dimensions of competition (price, entry and exit, differentiation and repositioning, investment), the evidence used to assess them must also be dimension- and case-specific and grounded in sound economic reasoning. No single indicator can serve as a general proxy for competitive effects across all contexts.

274. Structural indicators (market shares and concentration metrics) cannot perform this role outside homogeneous-goods markets. They do not capture the mechanisms that drive competitive rivalry in differentiated, dynamic or investment-intensive industries. The analysis therefore requires mechanism-based evidence tied to the specific strategic effects under examination, such as R&D pipelines and planned product launches that show how firms are likely to respond to rivals' innovations.

275. Importantly, such indicators should serve as analytical inputs—tools to shed light on how incentives change—rather than inputs for structural presumptions capable of generating automatic conclusions about the presence or absence of a SIEC.

4.2.3.1 *General principles*

276. **No one-size-fits-all indicators.** Evidence must reflect the mechanisms that matter for the specific theory of competitive effects under examination. Indicators relevant to unilateral price effects cannot inform about entry incentives; indicators relevant to R&D in new products rarely inform static pricing incentives of already existing products. The HMG should therefore emphasise the need to construct and interpret evidence dimension by dimension, not through general-purpose structural metrics.

277. **Evidence must not become input for structural presumptions.** Even when certain indicators provide information on a specific theory of competitive effects, they should not be used as inputs for structural thresholds or presumptions, as is currently the case with market shares and concentration metrics in preliminary assessments. In complex and dynamic industries, for example, the relationship between any such metric and competitive harm can only be indirect and context dependent. These indicators can only inform a broader, mechanism-based analysis of incentives and cannot serve as standalone triggers for presumptions of a SIEC.

278. **Evidence should escalate in complexity over the course of the review.** In Phase I, the Commission should rely on relatively simple, high-level indicators and assessment of broader economic frameworks—quantitative screens, basic incentive proxies, business-plan summaries and easily observable behavioural evidence—to determine whether a SIEC can be excluded. Where Phase I indicates that a SIEC cannot be ruled out, Phase II should incorporate richer, more granular evidence: internal documents, market investigation responses, simulations, econometric evidence and so forth.

279. Evidence must reflect all relevant types of information. Strategic effects can be informed by:

    a. internal documents (e.g. business plans, board minutes, R&D portfolios, incentive analyses, capital allocation documents, pricing strategy plans, business intelligence, competitor analysis)

    b. quantitative indicators (e.g. diversion ratios, substitution patterns, product-wide profitability measures, cost structures, financial constraints, investment intensity, historical rate of entry)

    c. qualitative evidence (e.g. market investigation responses, surveys, customer value assessments, interviews with market participants, business-plan narratives)

    d. forward-looking metrics grounded in economic theory (e.g. investment overlaps, expected repositioning, likelihood of entry)

280. Relying on these types of evidence allows the authority to assess both pro- and anti-competitive effects already in Phase I, with Phase II serving to refine the analysis and the overall balancing of effects.

4.2.3.2 *Examples of relevant evidence*

281. As discussed earlier, market shares seldom shed a useful light on the existence of a SIEC as they seldom capture closeness of competition and are static by nature. Instead of trying to refine market shares, adjust boundaries or develop forward-looking measures of future market positions, we suggest that the intensity of (future) competition, and hence the merger unilateral effects, can be better assessed using metrics that directly capture the relevant dimensions of competition. These would include, for instance:

    a. **Diversion ratios** to measure closeness of competition and survey data to quantify how customers value quality or specific product characteristics.

    b. **Indicators of potential entry,** such as sunk costs, regulatory barriers, asset specificity, customer switching behaviour or innovation in neighbouring but related markets.

    c. **Indicators of differentiation and repositioning**, such as product-attribute similarity measures, customer-segment overlap, planned product expansions and measures of scope for repositioning (e.g. share of product space not currently covered).

282. Investment is a particularly instructive domain because it involves multiple potential mechanisms identified by the academic literature which warrant the assessment of different types of evidence. The following examples illustrate how evidence can be used in the assessment of each mechanism.

283. Financial effects. A merger may strengthen or weaken the parties' financial capacity. The following indicators can help identify whether the merger increases the combined entity's ability to finance investment:

    a. Differences between the parties' Weighted Average Cost of Capital ("WACC"): The merger can lower the higher-cost firm's WACC and cost of capital. This positive effect increases the firm's ability to fund investment, strengthens the incentive to innovate and improves access to financial markets. Conversely, if the merger raises WACC due to increased leverage or risk, it constrains investment, reduces incentive to innovate and limits strategic flexibility (negative effect).

    b. Differences in return on capital employed ("ROCE") or its evolution over time. A higher post-merger ROCE enhances internal cash generation, enabling greater investment in R&D, product development or market expansion (positive). A decline in ROCE due to inefficient integration or poor asset utilisation reduces financial capacity and can slow innovation (negative).

284. Differences in interest rates on financial liabilities. Lower interest rates post-merger reduce financing costs, increasing the firm's ability to invest in new projects and strategic initiatives (positive). Higher rates increase borrowing costs, limiting investment and strategic manoeuvring (negative).

285. Where firms are publicly traded, differences in credit risk ratings. Improved credit ratings strengthen access to capital markets and reduce the cost of debt, enabling long-term investments and innovation (positive). A downgrade reduces financial flexibility and may constrain strategic initiatives (negative).

286. Correlation between stock price movements. Low correlation indicates diversification benefits which can enhance the firm's capacity to raise funds and invest in innovation (positive). High correlation limits diversification gains or increases perceived risk, potentially constraining investment (negative).

287. Margin expansion effects. As shown by Jullien and Lefouili (2018), a post-merger reduction in output lowers incentives for cost-reducing investment by shrinking the scale on which cost efficiencies apply. But this effect is not universal. If only one party invests in cost-reducing innovation, and that innovation can be deployed across the merged entity's entire output, the investment incentive may increase, not decrease. Evidence relevant to assessing this mechanism includes, for example:

    a. The ratio of post- versus pre-merger quantities on which the cost-reducing investment applies. The larger the ratio, the stronger the incentives to expand this type of investment.

    b. The magnitude of the output reduction for each party (in percentage terms) that would be required to equate pre- and post-merger quantities on which the investment applies. A larger value indicates a stronger effect on incentives to expand investment.

288. **Demand expansion effects.** As shown by Jullien and Lefouili (2018), post-merger margin expansion can increase incentives to invest in demand-enhancing activities, such as marketing, customer acquisition, service quality improvements or network expansion. When a merger increases profitability or reduces competitive pressure on margins, the combined firm may find it optimal to invest more in expanding its customer base or enhancing product value because the returns to such investments become higher.

    a. Relevant indicators may include the ratio between pre-merger product, network (e.g. in telecoms) coverage versus total potential post-merger coverage or historical responsiveness of demand to firm investment, and projected uptake of new services or products.

289. **Investment diversion effects.** Merging parties which invest on similar "pipeline" products may partially cannibalise each other, reducing investment incentives. But if this investment increases differentiation or grows overall market demand, the effect on competitors may be positive. Relevant evidence includes metrics of patent similarity metrics and overlap. This can be measured using natural language processing techniques applied to patent abstracts to capture thematic proximity.

290. **Technological spillovers.** If the merging parties' investments generate knowledge or technological spillovers that are difficult to appropriate, a merger can strengthen incentives by internalising these spillovers. Relevant indicators include:

    a. Measures of appropriability (e.g. how easily competitors imitate or absorb innovation). This can be measured through historical data on imitation or catch-up rates or times, for example.

    b. Employee turnover within the sector, affecting the likelihood that knowledge and acquired skills spreads across firms.

    c. The degree of geographical clustering of the industry. This is indicative of the existence of frequent in-person interactions, job mobility, community learning and rapid feedback loops.

4.2.4 Counterfactual

291. Assessing the likely competitive effects of a merger requires defining a clear and well-founded counterfactual scenario—that is, a (to be sure, dynamic) situation in which the merger does not take place. The merger's effects must then be evaluated relative to this benchmark.

292. The current HMG refer to the counterfactual only briefly, in the overview section. They state that "*in most cases the competitive conditions existing at the time of the merger constitute the relevant comparison for evaluating the effects of a merger*",[35] while acknowledging that future

[35] HMG, para. 9.

development of the market that can "*reasonably*" be predicted, such as entry or exit of firms, may also need to be taken into account.

293. The counterfactual should be defined explicitly and applied consistently across analyses of different merger effects as well as with the analysis of remedies. As noted earlier, this is an important point when it comes to the analysis of merger-specificity within an efficiency defence, which should be assessed against the same counterfactual scenario as the strategic effects. The Commission cannot, on one hand, assess the competitive effect on the basis of the status quo ex ante; and then, on the other hand, discard any pro-competitive effects by presuming that they can be achieved through alternative contractual arrangements (without an assessment of the plausibility of such arrangements, nor of their competitive effects). And where uncertainty about future without-the-merger scenarios is substantial, the analysis may consider multiple likely counterfactual scenarios rather than rely on a single static baseline; and assign different likelihoods to alternative paths.

294. Just as the Commission is expected to explain the theories of competitive effects it applies, it should also explicitly explain the counterfactual scenario it adopts. Making this explicit promotes consistency both across different analytical components within a case and across cases within the same industry. For example, if dynamic competition is invoked to justify blocking a "killer acquisition" which would eliminate a potential competitor, the authority also should accept that this potential competitor could constrain the behaviour of other firms in the event of another in-market consolidation that does not include them.

295. This does not mean that the authorities are expected to determine with certainty the counterfactual evolution of the merger absent the merger, in the same way as they are not expected to determine with certainty the evolution of the industry post-merger. The counterfactual should be understood as the most likely evolution of competition absent the merger, taking into account both current conditions and the foreseeable evolution of the market based on objective evidence. This may include expected entry or exit, technological change, regulatory developments, or shifts in demand. For instance, the failing firm scenario should be viewed just as a specific element of the counterfactual framework, not as an isolated "defence". More generally, the impact of financial constraints on one or both parties, which limits their investment and might lead to the erosion of their market positions absent the merger, should be considered as part of the counterfactual analysis, even when this does not lead to the exit of either party.

4.2.5 Balancing of positive and negative strategic effects

296. When a merger generates different strategic effects across different dimensions (e.g. short-term price increases but increased investment), the Commission *must* balance these effects explicitly. It is a mandatory step, not a desired or recommended one. Balancing may involve trade-offs across time (short versus long term) or consumer groups (those benefiting from investment and new products versus those primarily affected by prices) which the Commission has to deal with.

297. Moreover, the Commission also must deal with uncertainty in a proper way to avoid discounting dynamic effects systematically. Instead, the Commission must compare effects that differ in both

magnitude and certainty in a structured way. This requires distinguishing uncertainty arising from market dynamics (which is intrinsic to investment and innovation) from uncertainty arising from insufficient evidence. The former is unavoidable; the latter can be addressed through better evidence collection in Phase II. The key principle is that greater uncertainty does not justify giving disproportionate weight to short-term, easily quantifiable price effects, especially when the primary drivers of welfare are dynamic.

298. In some cases, the balancing exercise can be formalised using an economic model. By "economic model" we mean a structured, mathematical representation of how firms and consumers behave and interact—specifying demand, cost and behavioural relationships—that can be used to simulate how a merger will affect the relevant dimensions of competition, which need to be explicitly modelled (see Box 4 for an illustrative example). A suitable model can (i) map the merger's effects on prices, quantities, quality and investment over time; (ii) aggregate these effects across dimensions of competition (and potentially customer groups); and (iii) discount future benefits and harms to a common metric of consumer welfare. Models thus provide a coherent framework for combining different dimensions (price and non-price), different time horizons and different scenarios under a transparent set of assumptions. Where data and time allow, the Commission should be encouraged to use such quantitative tools.

299. In many cases, however, a full structural model will not be feasible. In those instances, the Commission should employ qualitative reasoning that replicates the structural logic of a proper model, using models as structured thought experiments. This means making explicit which dimensions matter most to long-run consumer welfare, the expected direction and relative magnitude of the effects along each dimension, and their timing; and then reasoning qualitatively about the net impact on consumer welfare. Crucially, this does not avoid assumptions; rather, it makes them explicit and disciplined. Whether the assessment is quantitative or qualitative, it inevitably relies on assumptions about future prices, entry, demand or technology.

300. Where the merger produces winners and losers among different consumer groups, the decision should be based on aggregate customer welfare, not on the artificial boundaries of relevant markets. Relevant markets are nothing more than analytical tools. Consumer welfare is the substantive objective, and economic tools allow for effective and fair redistribution. As shown in the discussion on out-of-market efficiencies, the redistributive consequences of mergers are unavoidable.

301. Accordingly, the HMG should set a clear principle: merger assessment must integrate all strategic effects (positive and negative, static and dynamic) within a single analytical framework and evaluate their overall impact on aggregate consumer welfare. Effects should be weighted based on (i) their relevance for long-run welfare and (ii) the strength of available evidence. Such a comprehensive and symmetric balancing exercise can ensure decisions that maximise consumer welfare over time.

302. In cases where negative and positive effects arise on separate dimensions or in separate market segments, targeted remedies—especially behavioural ones—may be appropriate. Behavioural commitments can neutralise harms in less central or more uncertain dimensions while preserving benefits where rivalry is most relevant for consumer welfare. Recent practice confirms the

feasibility of such an approach. The Competition & Markets Authority's ("CMA") *Vodafone/Three* case (ME/7064/23)[36] combined long-run investment commitments with price commitments to protect consumers. Remedies of this kind allow the authority to preserve pro-competitive effects rather than eliminate them through outright prohibition due to competition concerns in a less-relevant dimension.

Box 4. Economic models and merger simulation

This box illustrates, in a simple way, what economic models are and do; and how they can be used to simulate both direct and indirect strategic effects and measure the merger's total effect on consumer welfare. It is not intended to serve as a model for use in any specific case. Rather, it is purely illustrative: it is designed to show how models work in practice, the role played by their key components (the relevant variables/dimensions of competition, parameters, the counterfactual scenario and the way merger effects propagate through both direct and indirect channels) and how these elements can be combined to quantify overall welfare effects.

Consumer side: what consumers value

The consumer side is a fundamental part of economic models. Individuals (end-consumers) are equipped with a *utility function* that represents what they like and dislike, in the present and in the future. They may also face constraints, such as budget or information constraints. The "engine" that makes them move is the standard utility-maximisation assumption: consumers choose in a way that maximises their utility given the constraints and the market conditions they face.

In the present example, suppose consumers care about price and quality (e.g. coverage/speed of mobile services). For simplicity here, we look at a single average (or "representative") consumer, but models can easily accommodate consumer heterogeneity along any dimension. In period t (it can be a day, month or year depending on what is relevant in the case at hand), this consumer's utility from subscribing to operator j is:

$$U_{jt} = \underbrace{\beta_q \cdot q_{jt}}_{\text{value of quality}} - \underbrace{\beta_p \cdot p_{jt}}_{\text{disutility of price}},$$

where:

- p_{jt} is the price charged by firm j in period t (chosen by j),
- q_{jt} is the quality level offered by firm j in period t (also determined by the firm's choices),
- β_q and β_p are positive parameters (given features of the environment) that measure how much the consumer cares about quality and price, respectively.

[36] CMA (2025): Case (ME/7064/23) Final report on *Vodafone/CK Hutchison* ["Vodafone/Three"], paras. 16.573-16.578. Available at: https://assets.publishing.service.gov.uk/media/6751e18f6da7a3435fecbd87/1._Final_Report.pdf. Last accessed on 16 January 2026.

For instance, if empirical analysis determines that $\beta_q = 2$ and $\beta_p = 1$, the consumer needs an increase in quality q_{jt} of 5% to compensate for an increase in price p_{jt} of 10%.

In this way, this consumer prefers operator 1 over 2 in period t if U_{1t} is higher than U_{2t}. This can happen if p_{1t} is lower than p_{2t} and q_{1t} is higher than q_{2t}, or because the higher price (lower quality) of one operator is "small enough" relative to its quality (price) advantage.

The standard utility-maximisation assumption implies that, in every period t, the consumer optimally chooses the operator j^* that delivers the highest level of utility.

Taking time into account, total consumer welfare is:

$$W = \sum_{t=0}^{\infty} \delta^t U_{j^*t},$$

where $0 < \delta < 1$ is a discount factor that explicitly weights future benefits and harms relative to the current period. For example, if the discount factor is estimated to be ½ (or 50%), a 10% price increase today can be compensated, in welfare terms, by a 20% reduction in next period's price or by a 10% increase in next period's service quality (given the assumed values of β_q and β_p).

Importantly, economic models can incorporate virtually anything deemed relevant in the case at hand. On the demand side, the utility function can be extended to include any other variable that consumers care about (e.g. data, latency, a taste for complementarity between services). In terms of parameters, it can include other features of the environment, such as switching costs if consumers face frictions when changing suppliers.

Firm side: strategic variables versus parameters

On the firm side, firms are modelled as entities that transform inputs into outputs which they sell to customers (in competition with other firms). They may face technological, demand-side, informational or financial constraints. The "engine" that makes them move is the standard profit-maximisation assumption: firms choose in a way that maximises total profits (present and future) given the constraints and market conditions they face.

In this example, suppose each operator j chooses its strategic variables in each period:

- price p_{jt},
- investment I_{jt} in network infrastructure, which affects the quality of its service.

Notice how explicitly the model defines the dimensions of competition in this case (price and infrastructure investment). Firms choose these variables to maximise profits.

Assume that investment today affects future quality (the attribute consumers value) as follows:

$$q_{j,t+1} = q_{jt} + g(I_{jt}),$$

where $g(\cdot)$ is a function (to be modelled explicitly in a full application) that maps investment today into additional quality tomorrow.

As anticipated above, each operator j chooses price and investment levels to maximise its total profits. Current profits are:

$$\pi_{jt} = \underbrace{p_{jt} \cdot N_{jt}(\boldsymbol{p}_t, \boldsymbol{q}_t)}_{\text{Total operating revenues in } t} - \underbrace{c_{jt} \cdot N_{jt}(\boldsymbol{p}_t, \boldsymbol{q}_t)}_{\text{Total operating costs in } t} - \underbrace{I_{jt}}_{\text{Investment in } t}$$

where:

- $N_{jt}(\boldsymbol{p}_t, \boldsymbol{q}_t)$ is the number of customers who choose j in period t, which depends not only on j's price and quality, p_{jt} and q_{jt}, but on the prices and qualities offered by *all* operators, $\boldsymbol{p}_t$ and $\boldsymbol{q}_t$ (via consumer choice as above),
- c_{jt} is the marginal or average unit cost of serving a customer.

The firm chooses its prices and investment levels to maximise its total discounted profits:

$$\Pi_j = \sum_{t=0}^{\infty} \left(\frac{1}{1+r}\right)^t \cdot \pi_{jt}$$

where r is a relevant interest rate used to discount cash flows.

Even though not modelled here, investment I_{jt} has a cost given by the firm's cost of capital, which could be added to the analysis. The operator, in turn, will base its investment decisions on a comparison between the return on investment and its cost of capital.

In summary:

- p and I are variables that the firms choose—the **dimensions of competition**;
- the shape of $g(\cdot)$, the interest rate, the cost of providing service c_{jt} and the cost of investment (if added) are **parameters** (technology, costs, "ability" to turn inputs into output and quality).

An **efficiency** corresponds to a change in the parameters; for example:

- a more effective investment technology $g(\cdot)$(same euros of capex produce more quality),
- lower marginal cost of serving traffic, c_{jt}.

These parameters are not "chosen" by the firms in the model. They are features of the environment, and if their values are expected to change post-merger (in the form of efficiencies), this needs to be substantiated by evidence.

Merger effects

A merger between operators 1 and 2 changes two main things:

1. **Ownership:** Instead of maximising $\boldsymbol{\Pi_1}$ and $\boldsymbol{\Pi_2}$ separately, the mere change in ownership implies that the post-merger firm maximises joint profits $\boldsymbol{\Pi_1 + \Pi_2}$. This basic fact changes the chosen values of prices and investment levels, even if parameters remain as in the pre-merger situation (**direct strategic effects**).

2. **Parameters:** If the merger can generate efficiencies, this changes some of the parameters, as explained before. These changes in parameters, in turn, modify the post-merger decisions of p_{jt} and I_{jt} further (**indirect strategic effects**) beyond what is already the direct effect of the merger.

Merger simulation: comparing scenarios

A simple merger simulation proceeds in two steps:

- **1) No-merger scenario.** Using pre-merger data, the model is *calibrated* (its parameters are assigned values) so that it reproduces observed values of the variables such as prices, qualities and investment levels. This "no-merger" scenario corresponds to a level of consumer welfare, denoted W^{NM}.

- **2) Merger scenario.** To simulate the merger, one specifies (i) the new ownership structure (joint profit maximisation) and (ii) any substantiated efficiencies (cost, technology, financing parameters). The model then delivers new equilibrium choices for prices and investments and, in turn, a new level of consumer welfare, W^{M}.

The **merger's effect on consumer welfare** is then:

$$\Delta W = W^{\mathrm{M}} - W^{\mathrm{NM}},$$

which automatically aggregates:

- price and non-price dimensions (through U_{jt}),

- current and future effects (through the sum over time, discounted by δ).

As the example illustrates, these models provide value through a structured comparison between a no-merger and a merger scenario, all else equal, thereby measuring a genuine merger effect.

However, no simulation can perfectly match what actually happens post-merger: modelling is a simplification of reality; not *every single* variable can be realistically modelled, and assumptions about consumers' and firms' behaviour, constraints and interactions must be made. Nonetheless, if the merger improves consumer welfare systematically across a range of plausible scenarios in the model, this is a strong indication that the merger is more-likely-than-not pro-competitive.

Finally, these models are scalable in complexity. At one extreme, they serve as a transparent conceptual framework—as in this simple representative-consumer illustration. At the other, they can incorporate richer heterogeneity (e.g. different consumer types, regions or services). Even in their simplest form, having such a framework helps organise multiple effects in a unified way and identify areas that merit deeper empirical analysis.

Box R.3. Recommendations for the future EC HMG regarding methodological and procedural aspects of the assessment

- **Preserve the legitimate screening role of structural indicators, but limit their use to appropriate contexts.** Market shares and concentration measures should remain valid early stage screening tools, but the HMG should clarify that outside the context of unilateral static effects in homogeneous-goods markets, structural indicators can inform strategic effects only in specific scenarios.

- **Require the use of dimension-specific, mechanism-based evidence.** The HMG should emphasise that no single metric can proxy competitive effects across all settings. Evidence must be tied to the specific mechanisms underlying the relevant theory of competitive effects.

- **Ensure that indicators are never transformed into structural presumptions.** The HMG should clarify that all evidence (e.g. financial metrics, substitution measures, investment overlaps) are analytical inputs, never capable of triggering presumptions of a SIEC.

- **Adopt an evidence framework that escalates in complexity.** Phase I should rely on simple, high-level evidence and preliminary indicators of dynamic competition to decide whether a SIEC can be excluded. Phase II should incorporate more granular evidence: internal documents, market investigation responses, simulations and econometric analysis.

- **Require the explicit articulation of the counterfactual.** The HMG should specify that the Commission will explicitly articulate a clear and well-founded counterfactual scenario (or, where uncertainty is substantial, a set of likely scenarios) against which the merger is assessed; and apply it (them) consistently across all parts of the analysis—in particular, the competitive assessment, evaluation of efficiencies (including merger-specificity) and analysis of remedies.

- **Establish clear principles for balancing positive and negative effects.** The HMG should state explicitly that the Commission will integrate all strategic effects into a single aggregate-consumer-welfare-oriented balancing exercise, weighting each effect by (i) its relevance for long-run consumer welfare and (ii) the strength and quality of available evidence. In balancing the effects, the Commission may also consider the feasibility of remedying isolated harms without jeopardising pro-competitive gains.

5 Case Studies

303. In this section, we illustrate how our proposed structured framework can be applied in practice through three sectoral case studies: local markets/retail (section 5.1), telecoms (section 5.2) and life sciences (section 5.3). In each, we:

- show how the Commission currently assesses horizontal mergers,
- identify where risk aversion, asymmetric standards and sequencing distort the analysis of effects, and
- demonstrate how our proposed approach can be implemented using sector-specific dimensions of competition, theories of competitive effects and indicators of incentives.

5.1 Local markets

5.1.1 Industry overview

304. This case study focuses on sectors where physical distance is a primary determinant of customer choice due to the costs or inconvenience of travel. In these industries, seller location becomes a fundamental dimension of competition: if two points of sale are otherwise identical, a customer will almost invariably choose the closest one.

305. These sectors provide us with an example in which closeness of competition along a relevant dimension (here, distance) can be observed and measured rather easily. Nevertheless, everything that follows generalises to other dimensions of differentiation (format, assortment, etc.).

306. These settings arise in both business-to-consumer ("B2C") and business-to-business ("B2B") contexts. Examples include grocery retail, petrol stations, cinemas or apparel shops on the consumer side; and cement, aggregates, industrial chocolate and similar industries where transport costs or service radius matter on the business side. Price remains an important competitive parameter, but higher prices can be compensated by shorter distances (and vice versa), so the relevant trade-off for consumers is joint in price and location.

307. Other product and service characteristics also play a role in determining consumer welfare and choice. These include assortment and product range, loss-leading strategies on complementary products (such as fuel within supermarkets), opening hours, quality of service and overall network size. The relative weight of these dimensions differs across industries and over time. Because they reflect retailers' supply decisions in response to local and national demand, they are endogenous. Moreover, local and national market conditions evolve (e.g. real estate, macroeconomic trends, customer taste and purchase habits, evolution of demographic factors, emergence of online retail), so these characteristics should be expected to evolve *dynamically*.

308. Pricing regimes also vary. In some sectors prices are set nationally; in many others they are local. Some industries operate with a single uniform price for all customers in an area (e.g. supermarkets), while others price-discriminate at customer or contract level (e.g. cement, industrial chocolate). In what follows we focus on local, single-price regimes with many dispersed and anonymous customers, as in typical retail. In these cases, the Commission often identifies a likelihood of unilateral price effects at a "local" level and assesses the impact on all customers within that local area as a group.

309. Finally, industries differ in their degree of maturity. In some, local networks are largely fixed and stable; in others, networks expand or reconfigure over time, and formats of sale evolve (e.g. the progressive entry of supermarket petrol stations). Such dynamics are crucial for understanding merger effects: in highly dynamic local markets, entry or reconfiguration is frequent and often mitigates unilateral concerns. Moreover, as mentioned earlier, location itself is endogenous, as firms can open, close or relocate outlets. This means that location can respond to the merger, potentially creating additional pro- or anti-competitive effects.[37]

310. This case study thus illustrates a setting in which: (i) differentiation (here, location) is central for consumer welfare and choice; (ii) differentiation can be measured relatively easily and incorporated into the assessment from the outset; (iii) yet static and structural indicators are routinely used and still carry most of the analytical weight, even where they clearly fail to account for customer tastes and local competition; and (iv) relevant market characteristics (entry, exit, relocation, format innovation) and dynamic aspects are treated as countervailing considerations instead of being integrated into the competitive assessment from the beginning. We explain how such limitations can be overcome by applying the framework described in section 4.

5.1.2 The Commission's current approach

311. When distance matters, the Commission typically characterises the relevant geographic market as "national with local elements of competition". In such cases, it defines "local markets" by drawing catchment areas around either customers or suppliers. Catchment areas are intended to capture the "area of influence" of the corresponding centroid: the region from which a customer sources its purchases (customer-centric catchment areas) or from which a seller draws most of its sales (supplier-centric catchment areas).

312. In practice, actual customer-centric catchment areas are only feasible when customers' purchase patterns are known, as in some B2B cases. In most retail settings however, the Commission resorts to supplier-centric catchment areas[38]. Around each point of sale of the merging parties, it draws a radius corresponding to the distance or travel time within which the

[37] For example, relocation could position certain points of sale further away from competitors and closer to groups of customers not served by a nearby station prior to the merger. While this could potentially increase the welfare of these customers due to reduced travel costs, it could also lead to higher prices for everyone.

[38] European Commission (2023): Case (M.10438) *MOL/OMV SLOVENIJA* ["MOL/OMV"], Council Regulation (EC) No 139/2004, Article 8(2). Available at: https://competition-cases.ec.europa.eu/cases/M.10438. Last accessed on 16 January 2026.

outlet in theory attracts a large share (typically 70–90%)[39] of its sales and defines that area as a "local market".

313. Once these areas are drawn, the Commission treats them as local relevant markets and computes local metrics, which it considers akin to "local market shares" within each of them, assigning a share to each point of sale present in the area based on assumptions that are rarely explicit. These are often referred to as "presence-based" shares, as they are essentially the count (or weighted presence) of outlets by brand within the local area.

314. The Commission's preliminary screening identifies "problematic" local markets whenever these local shares cross certain predefined thresholds. For example, a local market may be flagged where the merging parties' combined share exceeds 40% and the increment for the outlet at the centre of the catchment area is greater than 5 percentage points.

315. For local markets flagged as problematic, the Commission often proceeds to a more in-depth analysis. At this stage, it computes additional indicators to assess the likelihood of unilateral effects within those areas, including:

- GUPPI-type indices based on presence-based metrics and distances;
- Local HHI and changes in concentration, and links to local price-setting behaviour;
- Other presence-based metrics (e.g. 3-to-2 or 4-to-3 reductions in the number of operators)[40]; and
- Measures of how close the remaining competitors are to the reference station inside the catchment area (e.g. within a 15-minute drive time).[41]

316. Mitigating or offsetting factors ("countervailing factors") are examined only after concerns have been identified on the basis of these structural screens. These include, for instance, the strength of competitive constraints imposed by rivals, their ability to expand capacity, the likelihood of future expansion or entry, and buyer power (including the ability of customers or chains to sponsor new entry). In cases such as Cargill/ADM Chocolate Business (M.7408),[42] these elements were considered late in the analysis rather than being integrated into the core assessment of how competition works in the first place.

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39 Different radii may be applied across areas (e.g. urban versus rural) to capture variations in customer preferences or choices, but generally they are not calculated for each individual store. Customers travel shorter distances when store density is high, not because their preferences fundamentally differ, but because greater local competition and higher demand give them more nearby options. This cannot be captured by computing store-specific radii, as these would wrongly produce smaller market areas precisely where competition is strongest, leading to a distorted assessment of local market boundaries. This shows that the entire approach by catchment areas is incapable to produce metrics reflecting the determinants of competition and customer choice.

40 MOL/OMV; European Commission (2022): Case (M. 9014) *PKN ORLEN / GRUPA LOTOS*, Council Regulation (EC) No 139/2004, Article 8(2). Available at: https://competition-cases.ec.europa.eu/cases/M.9014. Last accessed on 16 January 2026.

41 *Ibid.*

42 European Commission (2016): Case (M.7408) *Cargill / ADM Chocolate Business*, Council Regulation (EC) No 139/2004, Article 8(2). Available at: https://competition-cases.ec.europa.eu/cases/M.7408. Last accessed on 16 January 2026

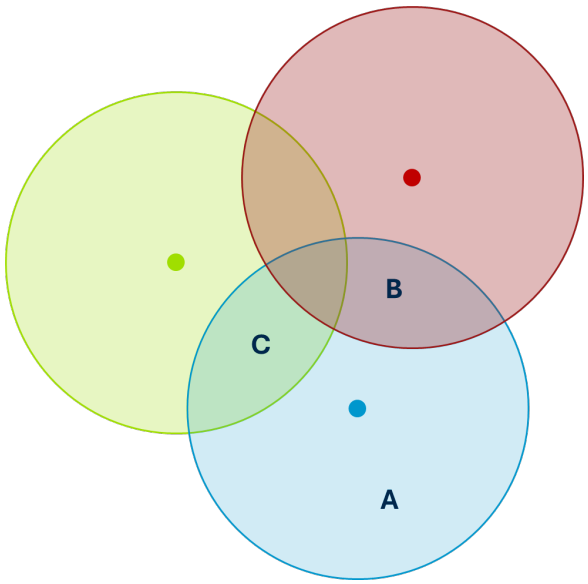
5.1.3 Limitations of the Commission's current approach

5.1.3.1 *Catchment areas are not relevant geographic markets*

317. Supplier-centric catchment areas are difficult to reconcile with the Commission's own definition of a relevant geographic market; that is, a "*geographic market [...] with sufficiently homogeneous conditions of competition*"[43] and that can be distinguished from other areas where conditions are appreciably different. Conditions of competition within a supplier-centric catchment area are typically far from homogeneous.

318. Figure 3 illustrates the point. The blue and red dots represent the points of sale of the merging parties, and the green dot a competitor. The circles represent the catchment areas of the respective outlets. Customers in area A have only the blue outlet as a viable option. Customers in area B see both merging parties as realistic alternatives; pre-merger, they could switch from blue to red if blue raised its prices, whereas post-merger that option is internalised. Customers in area C can switch to the green outlet even after the merger if blue raises its prices. Although all these customers lie within the same catchment area, the merger affects them in very different ways.

Figure 3. Supplier-centric catchment areas are not geographic antitrust markets



Source: BRG.

319. Because supplier-centric catchment areas do not satisfy the homogeneity requirement, they are not proper relevant geographic markets. Even assuming that they are based on real sales data (which they are often not), the metrics computed within them are not market shares in the usual antitrust sense. Even if they were, the presence of differentiation across suppliers means that a sound competitive assessment cannot rely on such shares alone, even for screening: it must explicitly consider the dimension along which firms differ (i.e. location). In practice, catchment areas are geographic constructs designed primarily to make it possible to compute structural

[43] Commission Notice on the definition of the relevant market for the purposes of Union competition law (OJ C 1645, 22 Feb 2024).

indicators. This makes them a clear instance of the Commission's over-reliance on structural proxies, even when doing so is conceptually flawed.

5.1.3.2 *Local metrics are not akin to market shares and are not meaningful*

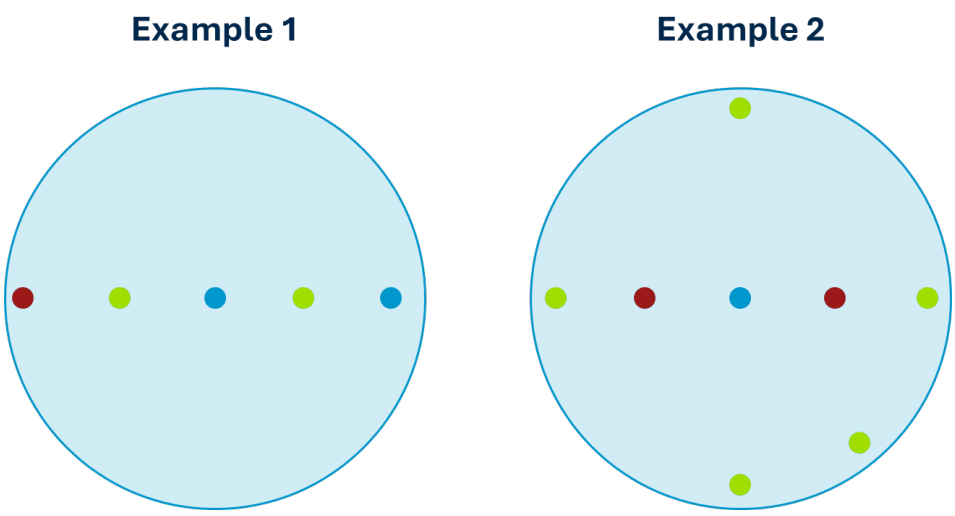
320. Local presence-based metrics are poor proxies for substitution patterns within a catchment area and therefore poor metrics for assessing the likelihood of unilateral price effects. Differentiation matters, and diversion ratios differ substantially across customers within the same local area. Customers located near the centre of the area may view a given outlet as their unique or primary option, while those close to the boundary may have a very different set of alternatives and, hence, purchasing behaviour.

321. Moreover, presence-based measures misrepresent the set of relevant alternatives. If customers are willing to travel up to a certain time or distance, those close to the border of a catchment area will naturally consider certain outlets outside (but close enough to) the circle as substitutes. Diversion to these outlets is completely invisible in the presence-based metrics the Commission computes, which consider only outlets within the arbitrarily drawn boundary.

5.1.3.3 *Structural metrics can easily misclassify problematic areas*

322. These limitations mean that structural screens can both over-identify and under-identify problematic areas. Figure 4 illustrates this with two stylised examples.

Figure 4. Presence-based screening metrics can easily lead to both false positives and false negatives



Source: BRG.

323. In Example 1, the merger (blue + red) results in a combined local share of, say, 40% with a 20-percentage-point increment (assuming that all stores are of the same sizes), triggering concern under the Commission's thresholds. Yet the two outlets are not particularly close substitutes for most customers; the merger's actual unilateral price effect is likely to be limited. This is a false positive.

324. In Example 2, the combined "local share" is lower (e.g. below 40%), so the area may not be flagged as problematic at the screening stage. However, the two merging outlets are each other's closest competitors for a large subset of customers within the local area. For those customers, the merger eliminates their main alternative and may raise prices substantially if travelling to the alternative outlets is more costly. This is a false negative. In both cases, the structural screen based on presence within a circle fails to track actual closeness of competition.

5.1.3.4 *Ignoring market dynamics*

325. Finally, whether local markets are static or evolving is crucial for understanding merger effects. If locations are essentially fixed (e.g. petrol stations on constrained motorway sites), the merger may significantly alter local competitive conditions for a prolonged period. By contrast, if new outlets regularly enter or formats of sale change (e.g. supermarkets add petrol stations), local conditions may adjust quickly, mitigating merger effects.

326. In current practice, such dynamics are treated as "countervailing factors" considered only after structural screens suggest a problem. They are not integrated into the core competitive assessment from the outset, even though they directly affect the likelihood and magnitude of unilateral effects.

5.1.4 Proposed approach

5.1.4.1 *Step 1 – Identify relevant dimensions of competition*

327. In line with our general framework, the first step is to identify the main dimensions of competition that drive consumer welfare in this type of market. In this case, the two main variables are price and location, but the Commission should also assess if other elements are relevant (e.g. type, format, scope of product sold and quality of certain complementary services).

328. Relevant market characteristics also should be accounted for from the outset, including patterns of entry, exit, relocation and expansion, and constraints on site availability. These dimensions determine both static competitive outcomes (current prices and choices) and the scope for adjustment over time.

329. Last, the development of retail networks can also be a relevant driver of customer welfare. Retail outlets can close, open, change formats and fascia (especially when they are franchised). This can lead to dynamic strategic competitive effects that are either pro- or anti-competitive which should be addressed explicitly as theories of competitive effects.

5.1.4.2 *Step 2.a – Assess strategic effects*

330. Given the relevant dimensions identified in step 1, the authority then should articulate explicit theories of competitive effects. For local retail markets, a natural theory focuses on unilateral price effects arising from the loss of local competition: Prices are likely to increase in areas where the

merging firms are each other's closest competitors for a significant fraction of customers and where alternative outlets are materially more distant or otherwise less attractive.[44]

331. To identify local areas where the merger may lead to price increase, one needs to rely on indicators that are genuinely informative about unilateral effects. This requires moving away from presence-based "local market shares" and towards metrics that reflect geographic differentiation and customer choice.

332. First, the identification of problematic areas should incorporate relevant market characteristics (e.g. in this case, geographic differentiation) from the outset. Overlap-based metrics (e.g. focusing on areas where the parties' catchment zones significantly overlap) remain imperfect but are already superior to simple presence-based shares because they at least target zones where customers are likely to view the parties as possible suppliers.

333. Second, it is unclear why it is necessary to rely first on a metric to identify problematic areas to then move to other metrics to assess the unilateral effect in these problematic areas. Local adaptations of standard unilateral-effects tools can be used to directly assess the impact of the merger on local prices for representative customers located in the affected markets. A local UPP framework, for instance, can be constructed by adapting the classic UPP analysis to account explicitly for distance and travel costs, so that diversion is modelled as a function of geographic proximity and local customer densities. The Commission has already been confronted with such proposals—and has pushed back on data and methodological grounds, as in MOL/OMV (M.10438). While local-UPP-type analyses rely on assumptions that can be challenged, the same is true of the market-share-based approaches systematically employed by the Commission. Moreover, market shares are particularly ill-suited to industries where geographic positioning is central to competition and therefore do not provide a more credible or robust basis for screening. In other words, the assumptions that make metrics computed by the Commission indicative of unilateral effects are stronger and less realistic that those grounding local UPP measures.

334. Third, and most important, the assessment should rely on metrics that put customer choice at the centre. Relevant indicators include:

- the share of customers for whom the merging firms are the first or second choice within a relevant travel radius;
- diversion ratios based on hypothetical or observed closures (not solely on price changes), capturing how customers would reallocate demand if one outlet disappeared;
- patterns of entry and exit, and the costs of relocation or expansion, which determine how easily competitive constraints can be restored; and

[44] Additional theories of competitive effects can centre around location, which may constitute an endogenous strategic variable. In some industries, a merger may create incentives to close or relocate outlets, potentially worsening access (longer travel times, congestion) for some customers but possibly improving it for others (if outlets are reconfigured more efficiently). Such location-related strategic effects can be pro- or anti-competitive and should be recognised explicitly. We focus on price-related theories of competitive effect in the remainder of this case study.

- population density and its distribution within the area, which is far more relevant for unilateral effects than average sales by brand within an arbitrarily drawn catchment area.

335. These indicators are not necessarily more complex to compute than presence-based local shares, but they are much more closely aligned with the underlying theory of harm and with the way competition actually unfolds in local markets.

5.1.4.3 *Step 2.b – Consider potential efficiencies*

336. In local retail markets of this kind, where prices are the primary dimension of competition likely to be significantly affected by the merger, the most relevant efficiencies operate through costs—in particular, local operating and logistics costs. A merged network can, for example, improve route planning and geographic coverage for delivery fleets (which often rely on specific fuel suppliers), consolidate warehousing and storage facilities, optimise restocking frequencies and reduce "empty mileage" between depots and outlets. Duplicated back-office functions and local management structures can also be streamlined, and purchasing conditions for inputs (including fuel, where relevant) may improve due to higher volumes. These mechanisms reduce marginal or variable costs at the outlet or catchment-area level; and, if substantiated by the merging parties, its behavioural implications—supported by the economic literature and available evidence—should be considered as part of the assessment of the merger's strategic effects.

5.2 Telecoms

5.2.1 Industry overview

337. The focus of this section is on the mobile telecoms market and in particular mobile network operators ("MNOs"). These companies own and/or control the infrastructure needed to provide wireless voice, SMS and data services. They provide services to customers at the retail and wholesale levels.

5.2.1.1 *Key features of mobile markets*

338. There are typically a small number of players with entry controlled by licensing and regulation—most markets around the world have between two and four active MNOs. Entry is typically controlled by the requirement for licensing of spectrum and the very large amounts of capex required to offer nationwide services. In principle, there are no limits to the number of entities that can hold spectrum. However, in practice, the need to have significant spectrum holdings to offer an adequate quality of service limits the number of MNOs in each market.

339. Despite the relatively small number of MNOs in each market, competition is typically intense. Barriers to customer switching are low, and customers are well informed about price and other competitive parameters. MNOs compete across multiple dimensions including price, coverage, speeds and customer service. They also increasingly bundle products (e.g. media apps) in with mobile contracts to attract and retain customers. Looking ahead, competition between MNOs will

increasingly focus on their capacity to support new technologies such as artificial intelligence ("AI").

340. Mobile virtual network operators ("MVNOs") have also grown over time in many markets, with barriers to entry in this market segment falling. MVNOs periodically retender their network services contracts, typically through a bidding process with MNOs competing for their business.

341. There is a requirement for continuous capex by MNOs. In most cases, spectrum licence conditions and other regulations set substantial network coverage requirements. In addition, operators invest beyond these to compete on coverage and quality. This involves building and operating many thousands of sites. These include long-lived passive assets (e.g. towers) with asset lives of twenty-five years or more and active equipment (e.g. radio equipment) which have a shorter lifespan of five years or less. The mobile industry is subject to a process of continuous technology upgrades (e.g. 2G to 3G, 3G to 4G, 4G to 5G). Each cycle leads to a new phase of competition on coverage with the latest technology and requires new radio equipment, upgrades to the core network and, potentially, the purchase of new spectrum licenses. In addition, European MNOs may face substantial further investment needs in the future to replace equipment supplied by high-risk vendors with alternative suppliers.[45]

342. In Europe these cycles have tended to occur around once every decade. The rollout of non-standalone ("NSA") 5G in most European markets is nearing completion with near universal coverage achieved in many cases. The 5G investment cycle continues, however, with upgrades to the core and other systems that are required to support standalone ("SA") 5G. This will be followed by the 6G cycle which is already being planned for and will involve major upgrades to both radio access network ("RAN") and core systems.

343. In addition to this cyclical pattern of investment in RAN upgrades, the industry is currently facing a new set of investment challenges arising from the enhanced focus on security and resilience in networks. Operators are being required to upgrade networks, increase redundancy and strengthen systems to provide continuity of supply in the event of natural and manmade challenges. The rapid evolution and adoption of AI is also creating new demands on network infrastructure, and the industry is required to invest to meet these demands.

344. Together, these requirements are placing ongoing demands on MNOs to invest into their networks and systems.

5.2.1.2 *The economics of mobile markets*

345. Consumer demand is continuously changing as network and device technology evolves and consumption patterns change. The primary product that MNOs sell has evolved over time, starting with voice and SMS but now primarily mobile data. Consumer preferences have changed as the network services have improved together with improvements in the functionality of devices and the availability of digital services. At different points in the last two decades consumers may have

[45] See European Commission, "Commission strengthens EU cybersecurity resilience and capabilities", Press release, IP/26/105, 20 January 2026, available at https://ec.europa.eu/commission/presscorner/detail/en/ip_26_105, last accessed on 20 January 2026.

had a higher preference for operators with a) high voice allowances, b) good network coverage, c) high data allowances or d) fast network speeds.

346. Looking forward, there is a growing understanding of the importance of quality dimensions such as reliability, continuity of service and resilience to shocks. These depend on redundancy, network topology, backup capacity and organisational robustness—all of which require significant investment in the network. Customer valuation of the security of supply factors may be more difficult to quantify than conventional characteristics such as speed and coverage.

347. Retail competition is complex and continuously changing. Consumers face a wide range of prices, contractual structures, the composition of service bundles, incentives and other types of retail proposition. These can vary widely—the size of data allowances within contracts or in pre-pay purchases, for example can vary from relatively small amounts of data to unlimited allowances. Consumers take these into account when making purchasing decisions. There can also be material differences in consumers' experience due to patterns of coverage, data speeds and latency.

348. The relationship between costs and output in mobile is complex. There is a large fixed cost associated with providing universal network coverage. This is incurred by establishing and operating a portfolio of sites across an entire geography. The capacity of the network to carry traffic is determined by the equipment and the amount of spectrum deployed on those sites. There is a "multiplicative effect" which means that a combined portfolio of sites and spectrum provides a significantly higher network capacity than two separate networks and a split spectrum portfolio.

349. There are also economies of scale at both the operator and individual site levels. A larger subscriber base means that each investment serves more customers and its costs can be recovered over a greater revenue base.

350. Decisions to improve network quality require capital investment which takes time to have an effect. It can take a period of several years for a decision to increase network capex to translate into improvements in quality of service (including reliability and continuity that are experienced by the majority of consumers). Not all investments take the same amount of time to have an effect: some core network upgrades can be implemented quickly, while others take much longer; visiting existing sites to install new network equipment takes time, while establishing new sites takes even longer.

5.2.1.3 *Implications for merger control*

351. The complex and continuously evolving nature of mobile markets makes it particularly difficult to evaluate proposed mergers in a way that is likely to result in mobile consumer welfare optimising outcomes. Consumers' valuation of price versus quality is changing, and the relative importance of the different dimensions of quality are also changing over time. This difficulty is compounded by the lagged relationship between investment decisions and quality outcomes.

352. Assessment of a proposed merger should account for all of these factors, with a particular focus on the likely impact of the merger on incentives and ability to invest in network infrastructure. A

balancing of different factors—the competitive effects of the merger—is then required to develop a comprehensive of the effect of the merger.

5.2.2 The Commission's current approach and its limitations

353. The Commission's approach when assessing mobile mergers has evolved over time. It has considered various of the elements that we have suggested in section 4 above in some form. However, there are some significant differences between what we propose in this report and the approach taken by the Commission in the past. In this section we outline some ways that the Commission has handled these elements in the past, and in the following section we describe how our proposed framework would apply to the mobile sector.

5.2.2.1 *Determinants of consumer welfare and the drivers of competition*

354. When considering mobile mergers, the Commission has accepted the importance of quality in competition between mobile operators. However, in practice, it has focused primarily on static price effects in developing theories of harm that could arise from the merger. For example, in Three/O2 (M. 7612), the Commission acknowledged the importance of quality in competition between MNOs[46] but, when it analysed the impact of the proposed merger, focused primarily on the short-term impact on price. It reported that its estimation *"…of the likely price effect of the Transaction takes into account the most direct unilateral effects as indicated in the Horizontal Merger Guidelines"*.[47]

355. In some previous decisions, despite accepting in principle that quality is important for consumers, the Commission has acknowledged that it did not have a quantitative understanding of customer valuation of quality and therefore was not able to take it into account when evaluating the merger, even on a standalone basis (i.e. not integrated into its UPP or other quantitative analysis). For example, in Three/O2, the Commission concluded:

> *"Second, even accepting the Notifying Party's corrected estimate, the long term average speeds for the Parties absent the Transaction are projected to be in excess of […] Mbps. While these figures are significantly lower than those for the merged entity which according to the Notifying Party are projected to be in the order of […] Mbps, the recommended bitrate for streaming a high definition video with the highest standard resolution of 1080p is 4.5Mbps. This implies that the average long run speed for the Parties absent the Transaction and using current encryption technology is […] that required for a video stream of the highest standard resolution. The projected average speed for the Parties absent the Transaction is hence likely sufficient to provide an excellent user experience and quality in the foreseeable future. Therefore, absent any assessment of the additional value of higher download speeds, the Commission cannot assume that there would be any material benefit to consumers"*.[48]

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[46] European Commission (2016): Case (M. 7612) *HUTCHISON 3G UK / TELEFONICA UK* ["Three/O2"], Council Regulation (EC) No 139/2004, Article 8(3), Figure 13 and Figure 14. Available at: https://ec.europa.eu/competition/mergers/cases/decisions/m7612_6555_3.pdf. Last accessed on 16 January 2026.

[47] Three/O2, para. 1192.

[48] Three/O2, para. 2459.

356. In this case, the Commission took its own view of what speed was "required" by customers. This view—based on its assessment that a download speed of 4.5Mbps was sufficient—implicitly assumed that the value of additional network speed, beyond the current level, was zero. This approach failed to evaluate the potential effects of the merger on consumer welfare when one of the key drivers of that welfare is network quality (in all its dimensions).

357. This approach results in consumer welfare being essentially dependant on price alone. In the Three/O2 case, the Commission ultimately only used average revenue per user ("ARPU") in its merger simulation, with no consideration in the simulation of quality elements or broader consumer welfare.[49] However, depending on consumer valuations, a merger that results in an increase in prices could still be welfare-enhancing if it also resulted in an increase in coverage and an improvement in the speed, resilience and security of the network (relative to the no-merger counterfactual).

358. In our approach, we therefore place a much greater emphasis on understanding and quantifying all the determinants of consumer welfare, with a strong focus on non-price factors. We do not think that a focus on price alone adequately reflects consumer preferences, and therefore decisions made on this basis would not be welfare-optimising.

5.2.2.2 *Counterfactual*

359. In general, the Commission's approach to defining the counterfactual scenario in a merger assessment is based on the competitive conditions prevailing at the time of the merger. For example, as the Commission noted in the Three/Telefónica Ireland (M.6992):

> *"In most cases, the competitive conditions existing at the time of the merger constitute the relevant comparison for evaluating the effects of the merger. In such a case, the Commission takes into account the situation that exists at the time when the Commission reviews the merger".*[50]

360. However, in the case of mobile mergers, the Commission has analysed how it thinks the market would evolve over the near term, absent the merger. In T-Mobile NL/Tele2 NL (M. 8792), the Commission saw some evidence of existing deterioration of quality and recognised that the operator had limited options to improve its quality. At the same time, the other MNOs were expected to increase their quality over time,[51] with KPN and VodafoneZiggo expected to remain strong competitors in the market.[52] The Commission concluded that "*...while the Parties currently are close competitors, the expected increase of the gap in network performances (capacity and quality) between TMNL and Tele2 NL casts doubts on Tele2 NL's ability to maintain the close competition that it currently exerts*".[53]

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[49] Three/O2, para. 1203.

[50] European Commission (2014): Case (M.6992) *HUTCHISON 3G UK / TELEFONICA IRELAND* ["Three/Telefónica Ireland"], Council Regulation (EC) No 139/2004, Article 8(2) para. 472. Available at: https://ec.europa.eu/competition/mergers/cases/decisions/m6992_20140528_20600_4004267_EN.pdf. Last accessed on 16 January 2026.

[51] European Commission (2018): Case (M. 8792) *T-MOBILE NL / TELE2 NL* ["T-Mobile NL /Tele2 NL"], Council Regulation (EC) No 139/2004, Article 8(1) paras. 551-553. Available at: https://ec.europa.eu/competition/mergers/cases/decisions/m8792_3403_11.pdf. Last accessed on 16 January 2026.

[52] T-Mobile NL/Tele2 NL, paras. 574, 584.

[53] T-Mobile NL/Tele2 NL, para 721.

361. Nonetheless, in most cases the Commission has considered that the appropriate counterfactual scenario is one in which the prevailing competitive conditions would continue. In Three/Telefónica Ireland, for example, it concluded that the parties would be able to continue competing effectively (and at the same quality as the merged entity) absent the merger because the merging parties had sufficient spectrum and sites to cover the whole country.

362. In our approach, we recommend a much more detailed scrutiny of the future of the market, absent the merger, with a particular focus on the investment that will be required to implement new generations of mobile technology, ensure the resilience and security of the networks and ensure that the communications networks do not constrain the development and adoption of new technologies such as AI.

363. This approach has been taken in other cases. In the T-Mobile/Sprint (No. 18-197)[54], for example, the US Federal Communications Commission ("FCC") accepted evidence (including network modelling) that there was no realistic way for either party to replicate the benefits of the merged entity's network alone. It found this to be true not just for Sprint, which it expected to decline in importance as a competitor, but also for T-Mobile, which without the merger would not be able to acquire the spectrum it would need to achieve the merged entity's improvements. In Vodafone/Three, the CMA considered detailed modelling analysis submitted by the parties of their network performance and competitive positioning absent the merger. This was incorporated into the counterfactual that was used to evaluate the impact of the merger.

364. Further, in the past the Commission has sometimes introduced additional scenarios that function essentially as counterfactuals at different stages of the process. For instance, it has considered new market structures (e.g. network sharing and spectrum sharing deals) as alternatives to a merger to demonstrate that claimed merger efficiencies were not merger-specific. This creates an inconsistency between the general counterfactual used to analyse competitive effects and that used to evaluate efficiencies. A better approach would be to either exclude such a scenario as unrealistic or, if it considers it to be the most likely alternative state of the market, fully model it as a counterfactual at all stages of the process.

365. Under the current approach it is possible for such "partial" counterfactuals to be introduced by the Commission at various stages to rebut different elements of the merging parties' case. There are multiple potential outcomes for a market. However, the Commission can address this by either choosing a single "most likely" scenario to model as the counterfactual or explicitly defining and modelling two or more scenarios that it considers to be reasonably likely. The outputs of these scenarios can then either be assessed individually or weighted to create a central counterfactual output.

5.2.2.3 *Incentive and ability to invest*

366. The approach that we propose in section 4 focuses on the ability and incentives of parties to invest. We emphasise the importance of examining the likely impact of a merger on these incentives. In

[54] FCC (2019): Case (WT Docket No. 18-197), *T-Mobile US / Inc. and Sprint Corporation* ["T-Mobile/Sprint"], FCC 19-103. Available at: https://www.fcc.gov/document/fcc-approves-t-mobilesprint-transaction-conditions. Last accessed on 16 January 2026.

the case of mobile, this requires an in-depth analysis of how combining two networks and two businesses would change the incentive and ability of the parties to invest versus the counterfactual. Importantly, it is not the total amount of investment that the MNOs make that is important. Rather the analysis should focus on the impact of the merger on outcomes that consumers care about (e.g. speed, latency, resilience and continuity, network security) which are affected by changes to incentives to invest and the impact that that investment has on outputs.

367. The Commission took a very different approach to previous mobile mergers. In most cases, the Commission has not accepted that a merger would lead to investment that results in higher levels of quality. In Three/O2, for example, the Commission stated its belief that the reduction in competition arising from the merger would lead to reduced quality:

"The Commission notes that the possibility of deterioration of competition post-Transaction may also take the form of the merged entity offering a lower quality of service compared to what would have occurred in the absence of the Transaction".[55]

368. This conclusion was not based on detailed analysis of the determinants of quality (e.g. investment in network coverage and capacity) or the interaction between quality and price in its simulation of the post-merger competitive equilibrium. Rather, it was based on the UPP analysis which did not consider the determinants of quality. The Commission has followed a similar approach in other mobile mergers that it has evaluated.[56]

369. In some cases, the Commission has considered the impact of the merger on investment. In Orange/MásMóvil (M. 10896), the analysis of the impact of the merger on investment focused primarily on the parties' financial capacity.[57] It claimed that the parties were "financially sound" and "had the ability to invest", even on a standalone basis, and therefore the merger would not have a positive incremental effect on investment. It also claimed that the merger would not have a positive impact on the incentive to invest (and in fact would likely decrease investment incentives because higher prices would lead to reduced demand in the market).[58]

370. This approach of focusing on financing capacity ignores the overall effect of a merger on the incentives to invest. The focus should be on how the merger affects the profitability of investment compared with the standalone businesses. This comes about in two ways: first, the merger consolidates the subscriber bases so the fixed costs of new investments are spread across a larger revenue base. Second, the amount that the business needs to invest to increase the capacity of the network by a given amount falls. Together, the increased revenue per unit of investment, and smaller amount of investment needed to increase capacity by a given amount, increases the profitability of new investments. The merged business therefore has a stronger incentive to invest in additional capacity than would a standalone business.

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55 Three/O2, paras. 1191-1195.

56 Three/Telefónica Ireland; European Commission (2014): Case (M. 7018), *TELEFONICA DEUTSCHLAND / E-PLUS*, Council Regulation (EC) No 139/2004, Article 8(2) Available at: https://competition-cases.ec.europa.eu/cases/M.7018. Last accessed on 16 January 2026.

57 European Commission (2024): Case (M. 10896), *ORANGE / MASMOVIL / JV* ["Orange/ MásMóvil"], Council Regulation (EC) No 139/2004, Article 8(2) para. 1605. Available at: https://ec.europa.eu/competition/mergers/cases1/202426/M_10896_10132275_5929_5.pdf. Last accessed on 16 January 2026.

58 Orange/ MásMóvil, paras. 1605, 1715.

371. Empirical evidence indicates that this effect has become greater as data has become more important to consumers relative to voice and SMS, because data benefits more from technical progress and dynamic efficiencies (including reduced unit costs arising from investment) than voice or SMS (Aimene et al., 2021; Bahia and Castells, 2023). This effect is likely to continue with the transition from 5G to 6G and network upgrades required for security and resilience, as data continues to be more important to consumers and investment into network technology continues to reduce unit costs and allow for the provision of more data services.

372. Such a situation is particularly relevant when considering a merger between number 3 and number 4 in a market. The economies of scale in mobile network deployment have increased as mobile technology has evolved. In markets with a leader–follower structure, it becomes increasingly difficult for smaller operators (i.e. followers) to catch up with larger operators (i.e. leaders) because their size becomes an increasing disadvantage and the costs of gaining the scale to compete increase over time.

373. The Commission has in the past rejected network-combination and rollout synergies that would reduce the marginal cost of achieving improvements in quality and increase the revenue base over which investments can be recovered. It has tended to draw a relatively simplistic link between the number of competitors and their incentive to invest in upgrading networks and has assumed that a reduction in the number of competitors would reduce the incentives to invest. However, these economies of scale—which are particularly important in 5G, network security and resilience and will play a similar role in adapting the networks to the demands of new technologies such as AI—mean that the merged entity may well have a greater incentive to invest in improving the quality of its network and thereby become a more effective competitor to the larger operators.

374. Our proposed approach to merger assessment would place much greater weight on the determinants of investment and how these translate into changes in quality. This analysis would be done in a detailed way, and this would then be integrated into the analysis of the impact of the merger versus the counterfactual.

5.2.2.4 *Treatment of investment as a strategic effect of the merger rather than as an efficiency*

375. One key change to the merger assessment that we have proposed in section 4 is to increase the focus on longer-term effects on dynamic competition. In mobile, the role of investment in determining consumer welfare is key and should be treated in the same way as short-term static price effects. As we describe below, this has some significant practical implications: it requires a greater weight given to modelling evidence and the impact of investment on quality outcomes. An equal evidentiary standard should be applied to all of these aspects.

376. This would constitute a major change in the way that the Commission assesses mergers. It has considered parties' claims for the effect of the merger on investment, costs and quality in the past. However, these claims have generally been assessed in the framework of efficiencies. The Commission has applied to these claims the efficiencies standard which requires them to be merger-specific, verifiable and benefit consumers. It has been difficult for parties to meet the requirement for being verifiable since they can only be assessed through modelling and forecasting which is necessarily uncertain.

377. For example, in Three/O2 the parties' claims relating to efficiencies and quality improvements were rejected in part because the Commission claimed that, as they relied on modelling, they were not verifiable. This is an unduly high evidential standard. Prior to the networks actually being integrated, this type of analytical exercise is the only way of estimating metrics such as congestion and short-term costs. Many important commercial network strategy and investment decisions are based on this type of modelling, so it is unreasonable for the Commission to reject it *a priori*.[59]

378. The Commission was historically sceptical of the merger-specificity of investment synergies claimed by merging parties. It often took the view that much if not all of the proposed benefits could be achieved through alternative non-merger arrangements such as network or spectrum sharing deals. This approach usually fails to take account of the business realities of entering into these complex arrangements and the constraints that they place on the sharing parties. In practice, they may be very unlikely to occur and are not a substitute for a full merger. By ignoring this, the Commission has underestimated the benefit of the merger versus the counterfactual.

379. Similarly, the *benefit to consumers* criteria usually comes with a timeframe that has meant that the Commission has dismissed strategic investment benefits that occur in the longer run. In Orange/MásMóvil, the Commission applied the three-criteria test to the parties' claims relating to investment. This limited the timeframe for the analysis to four years,[60] despite the fact that the parties had claimed that cost synergies would materialise over a ten-year period.[61,62] As a result, it concluded that *"…only a small share of the efficiency claims submitted by the Parties satisfies the cumulative test of verifiability, merger-specificity and benefits to consumers".*[63] By applying the efficiencies framework to a long-term strategic effect, the Commission excluded almost all of the potential network benefits (in the form of either lower costs or higher quality) arising from the merger.

380. The Commission applied a similar approach in Three/Telefónica Ireland. It equated quality improvements with efficiencies and applied the three-criteria test, resulting in it rejecting the parties' claims.

"An increase in network quality resulting from the merger is also an efficiency claim made by the Notifying Party and may constitute such efficiency subject to meeting the three cumulative criteria set out in paragraphs 76 to 88 of the Horizontal Merger Guidelines".[64]

381. Interestingly, the Commission has not been fully consistent in the way that it has incorporated synergies into its analysis. In *T-Mobile NL/Tele2 NL,* for example, it was willing to consider "run-rate" synergies that only occurred at the end of the time horizon:

"In this regard, concerning the cost synergies submitted by the Parties, the Commission notes that the cost synergies will reach run-rate[575] *stage in year 2021. Before that only part of the synergies*

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59 Three/O2, paras. 2437-2457.
60 Orange/MásMóvil, para. 1498 (a).
61 Orange/ MásMóvil, para. 1597.
62 This is consistent with other mobile network integration exercises which have typically taken between 5 and 10 years to complete.
63 Orange/ MásMóvil, para. 1498.
64 Three/Telefónica Ireland, para. 556.

would be realised due to the merger integration process. For this reason, in the present case the Commission's assessment of the efficiencies considers the benefit to consumers expected during the period 2018-2021 but the analysis of cost synergies will consider in particular the expected run-rate synergies following the network integration phase (i.e. from year 2021). The Commission notes that this approach, in this specific case, is in the Parties' favour as the run-rate synergies from 2021 are higher than the average annual synergies expected in the period 2018-2020". [65]

382. In this case, however, efficiencies were not a determining factor as the Commission concluded that Tele2 was unlikely to be an effective competitor in the future.

5.2.3 Proposed approach

383. In this section, we provide an overview of how the general approach to merger assessment described in section 4 could be applied in the case of a horizontal merger between MNOs. We focus on the competitive assessment and do not discuss other aspects such as market definition, etc.

384. As proposed in section 4, we follow a three-step process. In each step, we discuss how this would be applied in a horizontal merger between two MNOs. This is followed by discussion of more general considerations of the merger assessment process.

5.2.3.1 *Step 1: Identify the relevant dimensions of competition*

385. The first step in the assessment is to analyse and understand the relevant dimensions of competition in the market. In section 4, we identified four broad categories. We discuss each of these in relation to the mobile market and how they could be addressed in the case of a horizontal merger.

5.2.3.1.1 Static variables

386. These are short-term variables such as price, quantity and service offerings. They capture how MNOs compete on a day-to-day basis within the constraints imposed on the business by the network, its current brand positioning, its network of retail outlets, customer care capabilities, etc.

387. Company strategic and market documents will provide a picture of how the merging parties see these short-term factors driving competition in the market. The importance of short-term price changes, promotions (including increased bundle size) and other price and quality-related variables in gaining market-share is something that is closely scrutinised by management teams, and there is typically a considerable amount of evidence available within the company. The impact of negative quality factors such as congestion and outages is also discussed.

388. This should be complemented by third-party information sources on short-term dynamics, how customers respond to price changes and, in particular, how this compares with changes to other quality-related variables. Customer research permits quantification of customer valuation of

[65] T-Mobile NL/Tele2 NL, para. 892.

different competitive variables such as price versus quality (in all relevant dimensions). This evidence can be complemented by econometric analysis of customers' data that links customer churn with changes in relative prices and quality. How to do this in practice is described in more detail below.

5.2.3.1.2 Entry and exit

389. Entry into the MNO market is tightly constrained by the need for spectrum licensing and very high financial costs. There are examples of where this has happened (e.g. Iliad in Italy), but these would typically be the result of regulatory decisions (e.g. remedies applied to a horizontal merger) and would therefore not be considered in depth at this stage of the merger assessment process.

390. The barriers to entry for MVNOs are much lower, and the number of MVNOs has been growing in many markets. This affects the retail competitive landscape because MVNOs often target specific customer segments or have innovative retail strategies. However, because MVNOs are dependent on MNOs for the network services, entry by MVNOs generally has a more limited impact on competition between MNOs than the entry of a full MNO. Nonetheless, the impact of an MVNO can depend on market specificities, with some such as Digi in Spain and Telenet in Belgium having a significant disruptive impact on the whole market.

391. The Commission has correctly considered that the likelihood of entry by new MNOs is low, and a horizontal merger between two existing MNOs is unlikely to change this likelihood in a material way.

5.2.3.1.3 Strategic positioning and differentiation

392. Mobile is a differentiated product, and MNOs compete in the retail market across a number of non-price variables. This includes quality (e.g. coverage, speed, service continuity, latency), bundling (e.g. including handsets, digital services, apps, etc. in contracts), brand and customer care. Understanding this is critical to an assessment of how competition works in a particular mobile market. This can be investigated in the following way:

- Internal documents relating to marketing and brand strategy. These explain how the merging parties' management teams perceive brand and product differentiation to feed into their competitive strategy.
- Internal and external market research focusing on customer valuation, customer perceptions and relative brand positioning.
- Commissioned research that investigates customer valuation of different attributes of the MNO propositions. This needs to include research into customer valuation of specific attributes of mobile propositions (e.g. higher speeds).
- This evidence and analysis needs to address the following questions:
    i. What are the key product characteristics that customers value?

ii. What is customers' relative valuation of these different characteristics?

iii. How do MNOs compete in these dimensions? How do they respond to changes in their competitors' strategy in these different dimensions, etc.?

Box 5. Consumer valuation data for mobile telecoms mergers

There are a number of ways to develop a monetary estimate of consumers' valuation of quality.

Consumer Surveys

Consumer surveys are an important starting point for developing an understanding of consumers' valuation of quality metrics. These surveys need to be robust (e.g. using random probability-based methods) and should be realistic in what they set out to achieve, recognising that consumers do not always have a good understanding of the value they place on different metrics. This is described in more detail below.

Datasets from the parties

In some cases, the merging parties may already be collecting data on consumer switching related to quality and price. They may have data tracking responses to promotions (either price or volume related), data from surveys of those leaving their network or data comparing churn in more congested areas of their network compared to less congested areas. These can all be used to inform an assessment of consumer valuation of price versus quality.

Public price, quality and consumer choice databases

Depending on the market, there may be significant data already being publicly collected on consumer switching, network quality and prices. Example datasets include:

- a regulator's data samples of subscribers and the tariffs they chose over time;
- commercial datasets showing the tariffs available on the market over time;
- data on signal strength for the different networks in different areas over time; and
- datasets with estimates of download and upload speeds in different areas over time.

National statistics can also be used to estimate consumer income and other characteristics if this is not included in the sector-specific data.

Econometric modelling

Econometric estimates of this data can provide evidence on how different variables impact consumer demand, including how different prices and quality variables affect consumer choices of network and tariff plans. This can be used to estimate consumers' willingness to pay for different quality features.

This analysis can present some significant methodological challenges arising from, among other things, endogeneity in the variables. Given this, it is advisable for the parties to work with

the Commission on ensuring that the data quality is as high as possible and that there is a common understanding of how to address the methodological issues in the most effective way.

5.2.3.1.4 Investment

393. Mobile is an investment-intensive sector with MNOs investing large amounts of money annually, and a lot of this investment going into networks. This is a continual process, and each new technology cycle demands that MNOs invest in replacing and upgrading their network equipment. In addition to these cyclical network upgrades, there are increasing demands on the operators to strengthen the networks, improve resilience and protect against cybersecurity threats and natural disasters. As mobile networks become increasingly integrated into business supply chains, the ability and incentive of MNOs to invest in the additional network quality and value-added functionality that are required for business connectivity services also become more important.

394. The quality of mobile services (in all its dimensions) is largely determined by how much investment has been made in the network (cumulatively over time) and the technology and business choices that MNOs have made. This relationship is complex for a number of reasons:

- Investment can be made into different aspects of quality (e.g. coverage, speed, resilience, security, continuity of service).
- The effect of investment is cumulative—the impact of a Euro spent in the future is partly a function of the nature of the existing network.
- Investments can be made in different types of assets, and these investments interact with each other. For example, spectrum and sites/site equipment jointly determine the impact of additional investments on quality outcomes. As a general rule, the more spectrum an MNO has, the bigger the impact any additional investment in network equipment has on the quality of service. Similarly, the more sites an MNO controls, the bigger the impact of deploying spectrum in the network.
- There is a significant time lag between investment decisions being made and that translating into material improvements in network quality. There is often a further time lag before customer perceptions about networks change and thereby result in a demand response.

395. In this step, the competitive assessment needs to address the following questions:

- How does investment drive changes in network performance, particularly in the dimensions that are most relevant to consumers? This should include a forward-looking view of how customer priorities are likely to evolve over time as technology and usage patterns change.

- What is the current performance of the merging parties relative to their competitors, and what are the implications of this for future investments (on a standalone basis and in the merged entity)?
- How long does it take for investment in network infrastructure to translate into material quality improvements?
- What is the previous experience of investment by MNOs, including the merging parties? How much have they invested each year, what has been the impact on network quality and how has this translated into consumer acquisition and retention?
- What are the future investment needs for the industry in order to meet the needs of emerging technologies such as AI and to ensure that the networks are sufficiently resilient in the face of growing security and other type of threats?

396. To develop a detailed answer to these questions, the following analysis needs to be undertaken:

- Understanding past, present and future network strategies of the merging parties.
- Financial analysis of capital investments (past and forecast) and any ex-post evaluation of the impact of them.
- Modelling evidence that forecasts the impact of capital investment and key quality metrics such as coverage, speed, etc.
- Financial analysis that examines the profitability of future investment in network infrastructure compared with equivalent investments undertaken by the standalone businesses (i.e. in the counterfactual).

5.2.3.2 *Step 2.a: Assessing the strategic effect of mergers on competition*

397. Based on the understanding of competition developed in Step 1, the Commission should develop theories of the strategic effects of the merger on competition in Step 2.a. In many mergers, this strategic effects analysis will focus primarily on the impact of the merger on revenues and therefore profitability. In the case of mobile, a major element of these strategic effects is the way in which the merger affects the cost of investing in quality-enhancing network upgrades which is undertaken in Step 2.b. In practice, in a mobile merger, Steps 2.a and 2.b would be undertaken in parallel with the results of the efficiencies analysis feeding into the strategic analysis in Step 2.a.

398. As we describe in section 4, the analysis of the strategic effects of the merger should focus on the changes to the incentives of the parties as a result of the merger and compare this outcome with the counterfactual. This should be organised according to the dimensions of competition defined in Step 1.

5.2.3.2.1 *Short-term static effects on competition*

399. The merger changes the parties' incentives in the short run and therefore affects static competition. The overall UPP framework can be applied to a merger in the mobile market, but the metrics used in this analysis should reflect the dimensions of competition identified in Step 1. As discussed above, the merger results in a number of short-run cost and quality effects. These would be material to consumer experiences and the merged entity's decision-making and should therefore be factored into any UPP analysis to determine the net effect on consumer welfare resulting from the merger in the short run.

400. The data for this (e.g. cost reductions and consumer valuation of quality) should be obtained from the efficiencies analysis as well as consumer surveys and other analysis of the determinants of consumer welfare.[66] The UPP analysis should also use a diverse range of data to calculate diversion ratios, rather than being dependent on one source such as MNP ("mobile number portability") data. Alternative and complementary sources of data are consumer surveys and market research.[67]

401. Finally, it should be explicitly recognised that such UPP analysis is a modelling result and therefore subject to a degree of uncertainty. It is unusual to find direct evidence that management intends to raise prices following the merger.[68] It is therefore important to treat the UPP analysis with the degree of assurance justified by its inputs and assumptions, in the same manner as the efficiencies modelling is treated.

5.2.3.2.2 *Longer-term strategic effects*

402. The merger continues to affect the parties' ability and incentives in the medium to longer term. The market structure has changed, and this has changed the incentives of the merged company to invest in improving the quality of its network and services.

403. This change in incentives can be divided into two parts:

- Economies of scale improve the profitability of new investments; and
- Reduction in the cost of delivering quality improvements.

404. Together, these effects change the profitability of upgrades to the network. In most cases, it is more profitable for the merged entity to invest in improving its network quality than would be the case for the standalone businesses. This is a long-term strategic effect which should be at the heart of the merger analysis.

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66 Further discussion of this analysis is provided in section 5.2.4.

67 Note that this approach was done in Three/O2 with diversion ratios being calculated using a range of data sources to estimate diversion ratios.

68 Although there are cases where the Commission has found evidence of such intentions, for example in Three/Telefónica Ireland.

Economies of scale

405. Following the merger, the two networks are integrated and the two separate subscriber bases become one. This means that the fixed costs of the business are recovered across a larger revenue base. This increases the profitability of new investments and therefore the incentives to make these investments.

406. This can be illustrated at the site level of a network. Post-merger, the business is considering the establishment of a new site to improve the quality of service in an area. Once established, the site would be used by both sets of (pre-merger) subscribers. Conversely, if the standalone businesses were each to have established a new site in the area, they would share the subscribers between them. The investment would therefore be significantly more profitable for the merged company compared with the standalone businesses, *ceteris paribus*. As a result, the investment is more likely to be undertaken by the merged entity than the two standalone businesses, and therefore customers are more likely to benefit.

407. A similar logic applies to other types of network investment such as strengthening of systems, resilience and other ways of adapting networks to the demands of emerging technologies. All of these investments would benefit from their cost being spread across a larger subscriber base and from there being a larger potential revenue reward from success. This is a direct strategic effect resulting from the merger, which makes it more likely that the investment is going to happen and that consumers will receive a better quality of service.

Reduction in the cost of delivering quality improvements

408. The merger also reduces the amount of investment required to deliver a given improvement in quality. The combination of the spectrum portfolios means that the costs of delivering additional capacity is lower. Similarly, the greater number of sites in the merged entity means that lower-cost options are available to the merged business compared with the standalone entities.

409. This lower cost of providing additional capacity is an effect that continues over the long run. The larger portfolio of sites and spectrum means that the incremental cost of reducing congestion, improving urban coverage, eliminating gaps in coverage and improving network resilience is lower than it would be for the two standalone entities.

410. Demonstrating the existence and magnitude of the cost effects of the merger is part of the efficiencies analysis, which is discussed in more detail below under Step 2.b. Once they have been demonstrated, however, their consequence on the merging parties' ability and incentive to invest (i.e. their indirect strategic effect) should be analysed together with other strategic effects under the same standard, within a single, coherent SIEC framework.

Profitability of investing in network upgrades

411. As we note above, the merger can improve the profitability of new investments in the networks. This increases the financial incentive to invest and therefore makes it more likely that it is going to happen. This mechanism should be included in the analysis of the strategic effects of the merger and balanced against any negative effects. As before, this would be expected to feed through into

higher quality and/or lower prices, and the Commission must determine the likely impact on consumer welfare from these changes.

412. Analysis should be undertaken in two areas to develop an understanding of the likely effect of the merger on investment.

    a. Business strategy. Extensive business planning analysis and documentation are typically associated with the merger. This details the investment plans of the merged entity and the impact this is expected to have on quality and the company's market position. This should be compared with the outcomes expected on a standalone basis to understand how the management teams view the impact of the merger.

    b. Modelling of the cost of investment and its impact on outputs.

        i. Mobile networks are inherently scale businesses at both the aggregate and the site level. The merger combines the subscriber bases which results in more traffic (and therefore revenue) on aggregate and per site. This improves the profitability of adding additional capacity or engaging in other quality improvements and therefore increases the incentive to invest. This demand expansion effect should be investigated further using financial analysis of existing and planned capex programmes to determine the magnitude of the increase in incentives to invest.

        ii. One of the effects of a merger on investment incentives is a change in the investment required to achieve a given level of improvement. The merged entity has access to more sites and more spectrum. Both of these lower the cost of adding more capacity to the network and therefore strengthen the incentive for the merged entity to invest compared with a standalone basis. This needs to be analysed in detail at the site level to quantify these effects and evaluate the magnitude of the change in investment incentives. The impact on cost should be analysed as part of the efficiencies analysis and then fed into the larger analysis of incentives.

413. The Commission should combine these elements to develop an analysis of the financial returns to investment in networks and systems. This return on investment in the merged entity should be compared with a similar investment in the standalone businesses. This comparison captures the impact of the merger on investment incentives.

414. Over time the merger will also affect other competitive factors in the market, including brand positioning. In Vodafone/Three, the parties claimed that BT/EE had long held a position of dominance in terms of its network quality because of its large spectrum portfolio and had therefore been able to establish a brand position as "The UK's Best Network". The parties showed that this allowed BT/EE to capture disproportionate value in the market. They claimed that the merger would allow them to leapfrog BT/EE and begin to position themselves as the UK's best network instead. A similar dynamic was claimed in the T-Mobile/Sprint case. In these cases, the CMA and FCC both concluded that there would be a competitive response from the other players

in the market because of the merged entity's improved network, leading to market-wide increased investment in quality as well as potential pricing responses.

415. The Commission should investigate all these effects and consider them in a broad competitive analysis.

5.2.3.3 *Step 2.b: Considering potential efficiencies*

416. Step 2.b involves analysis of the efficiencies that the merger is likely to generate. As we note above, in the case of mobile, these efficiencies are realised in both the short and long terms. Reductions in marginal cost that take place shortly after the merger can be incorporated into the static effects analysis, but many of the cost reductions that arise from the integration of the network affect long-term incentives to invest in quality-enhancing upgrades to the network. These form part of the strategic effects analysis. In practice in the assessment of mobile mergers, Steps 2.a and 2.b are therefore undertaken in parallel.

417. The relevant efficiencies are those that affect the merging parties' pricing and quality decisions. Quality and costs are closely related in mobile because an MNO can treat increases in network capacity as an opportunity to deliver higher-quality services to consumers (e.g. faster network speeds) or as a cost reduction which allows them to reduce prices.

418. As we discussed above, mergers have a significant impact on the merging mobile operators' cost structures, technical capabilities and network footprints. This results in a number of efficiencies that play out in both the short and long runs. For example, the combination of two portfolios of sites into a single business creates a wider area of coverage and reduces gaps in coverage within the network footprint. The combination of two spectrum portfolios also significantly decreases the cost of providing network capacity. This is referred to as the *multiplicative effect*, in which the capacity of a network is a function of the number of sites multiplied by the amount of spectrum. Combining two networks and spectrum portfolios therefore results in significantly more capacity than the sum of the two standalone networks.

419. Some of the capacity increase arising from combining two businesses occurs in the short run. Additional spectrum can be deployed on new sites at low cost, and technologies such as multi-operator core networks ("MOCN") allow subscribers of one of the networks to roam on the sites of the other network, thereby easing congestion and improving capacity.

420. Other parts of the increase in capacity take longer to be realised. Site integration requires installation of new physical equipment and sometimes upgrading passive infrastructure at the site. This incurs costs and takes time to implement, but the cost of installing this capacity as a merged entity is significantly lower than the cost that the standalone MNOs would have incurred if they had implemented the same capacity expansion. This is because:

    a. Integrating neighbouring sites so that both parties' customers can use them provides an immediate capacity boost and is many times cheaper than building a full new site (which would have been required to achieve the same effect in the standalone MNOs).

b. Upgrading a site to install additional spectrum is also significantly cheaper than building an entirely new site (which would have been required to achieve the same effect by the standalone MNOs if they did not have additional spectrum to add to their site).

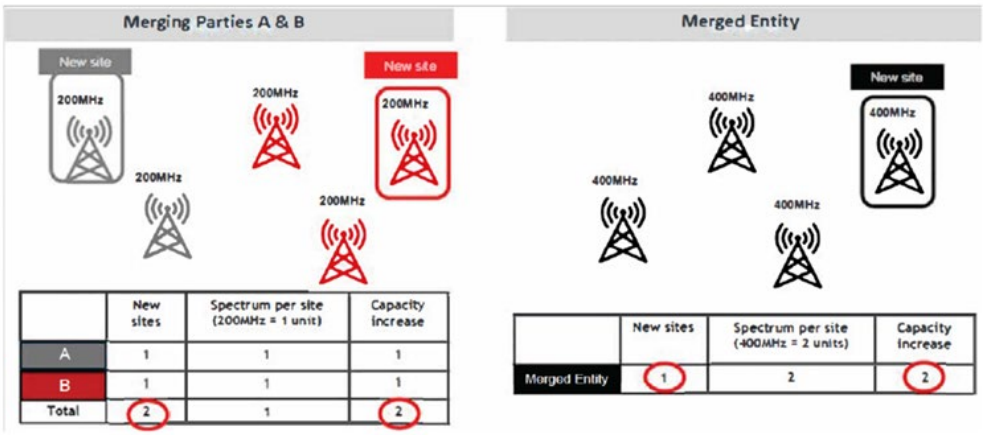
c. There is a fixed cost associated with sending a team to work at a site. By deploying additional spectrum at the same time as a site is integrated, that fixed cost can be borne by the integration process. This means that upgrading the site to install additional spectrum is also cheaper than it would have been for a standalone MNO that was only seeking to upgrade its sites.

421. The cost of adding additional units of capacity continues to be lower for the merged entity even in the long run after all network integration has been completed. This is for two reasons:

a. The merged entity continues to have more spectrum to deploy on each new site. This means that it can achieve the same capacity increase with fewer new sites than the standalone MNOs would have been able to. In a simple example where the merged entity has double the spectrum capacity of each individual MNO, it could potentially achieve the same capacity increase with half as many new sites. The CMA provided an illustration of this effect in the Vodafone/Three merger case, which we have included in Figure 5 below.

b. The merged entity is also likely to continue to have a larger network of sites than either of the two standalone MNOs would have had. This means that going forward it continues to have more options to upgrade sites in any given area rather than building entirely new sites.

Figure 5. Illustrative example of lower incremental cost of expanding capacity following a merger



Source: CMA in Vodafone/Three, Figure 14.6.

422. This all means that the marginal cost of providing additional capacity is significantly lower for the merged entity than it would have been for the standalone entities. This is true throughout the integration period and beyond. The precise level of that marginal cost varies significantly and

ranges from low (when it just involves activating additional spectrum in a band that is already owned) up to high (when the development of new sites is required in the post-integration period).

423. This affects the merged parties' decision-making process. Many quality improvements (e.g. improvements in the speed, latency, network resilience and security) depend on the capacity of the network, and the merger enables higher capacity at reduced cost. This can also affect the parties' pricing decisions, as the lower marginal cost allows them to offer more data at a lower price.

424. As indicated earlier, other quality improvements also flow from the merger. The larger network footprint and larger spectrum portfolio of the merged entity means that greater indoor and outdoor coverage is available to their combined subscriber base. As with the capacity improvements, some of this additional coverage can be made available to subscribers very quickly using MOCN technology, while some requires full site integration. In both cases, however, the cost of providing this additional coverage is significantly lower than it would have been for the individual MNOs, which would each have needed to build new sites.

425. The only way of evaluating the impact of merging the networks on quality and/or on costs is through modelling. This is the way that MNOs plan network strategy and monitor performance. Network engineering parameters (e.g. the impact of MOCN on coverage and capacity/speeds) should be treated with a similar level of confidence as internal documentary evidence from the merging parties when considering efficiencies.

426. In some cases, one or more of the parties will already have a full network forecasting model that can be adjusted to forecast the capacity and coverage of the merged entity and the standalone entities under different scenarios. This was the circumstance with T-Mobile in the T-Mobile/Sprint case in the US and for Three in the Vodafone/Three case. However, in some cases a model will not yet exist that covers all the relevant dimensions of the network. This will therefore need to be built by the Commission or the parties, using engineering inputs and network structures provided by the network teams at the parties. The fact that a model is built specifically for the merger should not be used as a reason to dismiss its outputs. The inputs, assumptions and structure of the model should be rigorously tested and subjected to the same evidentiary standard as other merger evidence, and the model outputs should be accepted on the strength of this testing.

427. Lack of merger-specificity has sometimes been invoked as a justification for rejecting efficiency claims. As we discuss below, in the ordinary course of business, parties have a strong incentive to find ways of reducing costs and/or improving quality. This has resulted in extensive network-sharing arrangements and other contractual structures designed to improve operator performance. In many cases, it is therefore unreasonable to claim that there are other ways in which merger efficiencies could be achieved. Had this been feasible from a practical and operational point of view, the parties would have already implemented them. The assessment of merger efficiencies should therefore be based on the reasonable presumption that any efficiencies that are demonstrated to arise from the merger are merger specific.

5.2.4 Further considerations on the application of the proposed framework to the telecoms industry

5.2.4.1 *Data and analysis*

428. The approach described above requires the collection and analysis of evidence at a level of detail which has not previously been undertaken in assessment of mergers in the mobile sector. The key elements of this evidence and analytical base are described below.

Table 2. Consumer valuation of quality

Consumer surveys	
A balanced approach	• In the past, merging parties have often presented survey evidence to show relative consumer valuations of quality and price. However, the Commission has, in the past, reduced the reliance placed on these because it is claimed that they do not have sufficient methodological robustness and therefore do not meet the verifiability standard. • This results in a significant gap in the evidential base that is needed for a balanced assessment of a proposed merger. Instead of simply rejecting survey evidence for methodological flaws, the Commission should seek to conduct its own, methodologically robust consumer surveys to test the metrics at stake. In addition, guidance on survey methodology should be strengthened so that any research commissioned by the parties meets the methodological requirements of the Commission.
A realistic approach	• Quality metrics are not as easily quantifiable or well understood by customers as price metrics; for example, a 10% increase in price is a clearer concept to customers than a 10% improvement in indoor coverage, or even a 10% increase in speed. Therefore, the Commission will need to be realistic about what can be achieved through survey data. • Because of the difficulty consumers have in quantifying their response to quality, the Commission should seek to understand consumer valuation of quality metrics qualitatively in the first instance (i.e. to get an indication of how important various quality metrics are). Any attempt to elicit more precisely quantifiable responses from consumers will need to be undertaken with great care. • Given the inherent difficulties in obtaining accurate data on consumers' valuation of non-price factors, the Commission should accept that this evidence has a greater degree of uncertainty about it than other (e.g. financial) data. This should not lead to a wholesale rejection of the evidence. Rather, it should be incorporated into the analysis, along with other data that is necessarily uncertain.

	• The Commission should also ensure it seeks both positive and negative responses to quality. Consumers' understanding of their responses to a decline in quality may be clearer than their understanding of their response to an increase in quality.
Revealed preference	• The Commission should seek out (or seek to build) datasets that can be used to econometrically estimate consumers' valuation of quality metrics based on their revealed preferences. This type of evidence can complement the results of consumer surveys to develop the best possible evidence regarding consumer valuation of non-price aspects of mobile services.
Business customers	• Businesses are key users of mobile networks, and this is likely to increase over time with the growth of network technologies such as slicing. The integration of AI and other technologies into business processes will also increase their dependence on the mobile networks. The requirements of businesses at the time of the merger and how this is likely to evolve over the short to medium-term should be a key area of investigation by the Commission when assessing a proposed merger.

Source: BRG.

429. We note that consumers find it difficult to place a valuation on products that they have not yet experienced (e.g. new generations of mobile technology), and consumer valuation evolves over time as preferences change in ways that they are not able to foresee. Consumer surveys that attempt to estimate future valuation for such products are therefore necessarily limited. In these cases, it is important to broaden the scope of the evidence that is considered. For example, historical trends in how customers have adopted new technologies, customer valuation of new products in other markets where products have been deployed, etc. are all potentially informative of how product characteristics (e.g. speed, latency) drive consumer welfare.

5.2.4.2 *Investment and quality*

430. A detailed understanding of the relationship between investment into mobile networks and quality outcomes is essential. This analysis needs to be done at the site level and capture how this output variables change over time as networks are integrated. It should be combined with financial analysis undertaken by MNOs in relation to previous capex programmes to demonstrate the link between investment and relevant outcomes.

Table 3. Network modelling

Network modelling	
Detailed (generally site level) modelling is required	• Many of the most important metrics in a mobile network are determined at the site, rather than whole-network level. One site may have far more radio equipment and spectrum than another, or one site may have more "coverage" spectrum while another has "capacity" spectrum. The number of users, density of those users, and possibly even usage patterns will also vary significantly from site to site: a site in a central business district will have far more users in a smaller area than a rural site and may also experience very different average demand per user and peak usage times. • This means that quality metrics are determined first and foremost at the site level. Site-level data can be aggregated to provide a picture of network-wide metrics, but network modelling needs to take account of site-by-site dynamics. An example of this is the matching of demand with capacity: at a network wide level it may appear that a network has enough capacity to meet rising demand, while a site-by-site analysis might show that there is significant spare capacity on a limited number of sites and other sites are heavily capacity constrained. As a result, rising demand might lead to quality impairments on a significant portion of the network despite the apparent network-wide capacity. • Detailed, site-level modelling across the whole network should be used to investigate how both cost and quality metrics would evolve over time subject to different demand, investment and structural inputs. This allows for the modelling of different merger scenarios as well as counterfactual as-is scenarios for the merging networks. • In some cases, MNOs will already have an existing detailed network model that they use for planning purposes. This was the case of T-Mobile in the T-Mobile/Sprint merger, and of Three UK in the Vodafone/Three merger in the UK. In these cases, the existing network model can be repurposed to forecast network performance in different merger scenarios as well as in counterfactual as-is scenarios. • The modelling of development of the networks in both the merger case and in the counterfactual should explicitly take account of expected technology developments. These include strengthening the networks to be more resilient, implementing major changes in network architecture through, for example, network virtualisation and the increasing migration of functionality to cloud-based technologies.

Cost modelling	• The outputs of the network modelling can be combined with cost and financial information from the operators to determine the costs associated with different scenarios. • This would allow the Commission to investigate any claims of cost improvements, increased investment effectiveness and greater incentive to invest. • The cost and network modelling data may also provide the opportunity to examine site-by-site profitability under different scenarios to appraise the incentive to invest at a granular level.
Price modelling	• The Commission should investigate the degree to which step changes in marginal/incremental costs feed through to changes in prices offered to consumers. • If a general relationship can be established in a particular market, there may be scope for the cost modelling to feed into broader price modelling.

Source: BRG.

5.2.4.3 *Merger simulation*

431. The key to evaluating the impact of a mobile merger in the way that we have outlined in section 4 is to understand the effect of the merger on both short and long-term incentives. The impact of the merger on incentives to invest and the effect that this has on quality and demand is a critical component of this. The response of other competitors in the market to the changing competitive dynamics following the merger is also a very important factor in considering the market as a whole. This overall effect can be estimate using merger simulation analysis.

Table 4. Merger Simulation

Merger Simulation	
Simulating more than price	• Traditionally, merger simulation modelling has focussed on simulation the price effect of mergers. However, in assessing mobile mergers this approach falls short on two fronts: first by failing to take account of quality effects, such simulations cannot capture changes in consumer welfare; and second by failing to take account of strategic investment effects, such simulations are unlikely to capture even the full impact on price. • The traditional approach should be adjusted to one in which firms choose both prices and investments, with investment affecting cost and quality outcomes which feed into price and consumer demand. This is

	clearly a more complex exercise, but it is one that will more accurately reflect the complex dynamics in the mobile telecoms sector. • In line with the earlier proposals, simulation modelling should also cover the range of potential counterfactual outcomes, in which different market structures will have different cost, quality and price implications. This will allow for a balanced approach in which the various costs and benefits of the merger and the counterfactual are all considered.
Pragmatic treatment of simulation modelling results	• Detailed network modelling, rigorous surveys and econometric analysis of revealed preference will help provide input assumptions and calibrations for such a simulation model. However, simulation models are inherently limited by their assumptions and the available data. This will be especially so when including quality variables whose impact on consumer welfare can be difficult to quantify. • Simulation models therefore need to be taken as an important but limited piece of quantitative evidence that needs to be weighed with all the other available evidence. Where elements such as investment and quality are missing from the modelling, less weight should be placed on the simulation.

Source: BRG.

432. Merger simulation has been used in previous mobile mergers, but these exercises have, in some cases, been criticised for being too restrictive or relying on too many assumptions.[69] The pros and cons of merger simulation have been widely discussed. The primary advantage is that they combine effects along different dimension (e.g. price, quality, investment) and model the competitive response from other players in the market and so provide a more generalised result than the partial analysis used in UPP tests.

433. If they are used in mobile in a way that captures the long-term effects of the merger on dynamic competition, they need to include investment and quality as endogenously determined variables. This complicates the modelling but more accurately reflects the dynamic competition process that takes place in the real world.

5.2.4.4 *Counterfactual*

434. The definition of the counterfactual scenario is critical since it will significantly affect the conclusions about the impact of the merger. It should take into account the following considerations:

[69] Three/Telefónica Ireland; European Commission (2012): Case (M.6497), *HUTCHISON 3G AUSTRIA / ORANGE AUSTRIA*, Council Regulation (EC) No 139/2004, Article 8(2). Available at: https://competition-cases.ec.europa.eu/cases/M.6497. Last accessed on 16 January 2026.

a. Reasonably foreseeable future scenarios about the strength of competitors, absent the merger. This is particularly important in cases where one of the merger parties is a declining competitive force.

b. It should not make unrealistic assumptions about alternative (i.e. non-merger) contractual structures that could achieve some of the benefits that the merger parties claim.

c. It should be detailed, involving the same level of network modelling and other analysis of quality, cost and price as has been proposed for the merger scenario.

d. It should explicitly recognise that there is a degree of uncertainty about any counterfactual scenario that is developed.

5.2.4.5 *Evidential thresholds*

435. The approach to merger analysis in mobile proposed here covers a wide range of topics and includes areas that have traditionally not been investigated in detail. It also covers short-term and long-term effects.

436. The Commission's approach to previous horizontal mergers has applied different thresholds to evidence for short-term upward pricing pressure compared with longer-term strategic effects and efficiencies. In section 4, we discuss why this is not appropriate and propose a more symmetric approach in which the same evidentiary thresholds are applied to all aspects of the competition analysis.

437. In the assessment of mobile mergers, this would apply in the following way:

a. **Balanced view of uncertainty.** A recognition that short-term UPP analysis is itself based on modelling with inputs that have a significant degree of uncertainty (e.g. diversion ratios). This would also necessarily be the case if quality adjustments are made to price measures, as we propose above. This reduces the level of certainty associated with UPP analysis relative to the analysis of longer-term effects.

b. **Timeframe for analysis.** Recognition that a longer timeframe does not necessarily reduce the probability that an effect will take place. Mobile network integration is an important example of this. It takes a significant period of time for two mobile networks to be fully integrated (typically five to ten years). Despite this length of time (beyond a period that the Commission would normally consider for a merger), there is a high likelihood that it is going to happen because of the strong financial and technical incentives to do so. The period of time over which it takes place should therefore not be a reason to exclude it from the analysis.

c. **Modelling is a valid source of evidence.** Network and financial modelling is not *a priori* weak evidence compared with other sources. Ideally, analysis from modelling would be complemented by direct evidence of management strategy. However, this is unrealistic for some areas. Detailed modelling of networks can be very informative of

how networks will evolve during the network integration process and how this translates into customer experience. Such models are used in-house by MNOs to inform strategy and major financial decisions. They should therefore not be dismissed in the context of a merger.

d. **Verifiability of efficiencies.** In the case of efficiencies, as we note above, modelling should be given more weight in the determination of verifiability. The Commission should avoid speculation on alternative contractual arrangements such as network sharing in their assessment of merger-specificity. MNOs have strong incentives to share networks, and there are few constraints on them doing so. The presumption should therefore be that, if such arrangements would reduce costs, they would already have been pursued by the parties.

5.2.4.6 *Balancing across dimensions*

438. In order to get a full understanding of the potential impact of a merger, the Commission needs to balance the range of effects across the different dimensions and across time. The balancing across different dimensions should be done using quantitative evaluation of consumer valuation of those dimensions. This can be obtained from the types of research and analysis that we describe above. The Commission should place a valuation on increased levels of coverage—particularly in rural and other underserved areas—and on network speeds and reliability. This can be combined with the analysis of price effects to obtain an estimate of the overall effect on consumer welfare.

439. Short and long-term effects also need to be balanced. These should primarily be assessed from the point of view of the customer and a suitable discount rate applied.

5.2.4.7 *Remedies*

440. It may be that the Commission concludes that the short and long run effects of the merger work in different directions. Alternatively, there may be more than one likely long run path, which would lead to different consumer outcomes (e.g. if there were two or more equilibria for the investment strategy of the merged entity). In these cases, if there is a path on which the merger would be expected to improve consumer welfare, then targeted remedies can be imposed to ensure that this path is followed. For instance, in both T-Mobile/Sprint and Vodafone/Three, the FCC and the Commission imposed remedies to control short term prices in order to protect consumers from short-term upward pricing pressure and accept network investment commitments that guaranteed that the parties proposed network build strategy would indeed be followed.

5.3 Life Sciences

5.3.1 Industry overview

441. The market in life sciences is organised around the discovery, development, and commercialisation of molecules. In this context, a molecule is the active pharmaceutical

ingredient (API), the chemical or biological substance that produces the therapeutic effect in the body. Molecules are unique intellectual creations, typically the outcome of long, risky research efforts and, once their structure and therapeutic effect are identified, they can be protected by patents and related exclusivities. The protection and exclusivity granted to molecules shape not only market power but also the dynamic competitive incentives for firms to invest in early-stage R&D and pipeline development.

442. The life cycle of a medicine can therefore be viewed as a four-stage process:

- Discovery and pre-clinical R&D. Researchers identify a promising molecule (or biological agent) and generate the scientific and technical evidence needed to file for patent protection and justify further development. Discovery projects can be grouped into *innovation spaces*: clusters of scientific approaches, mechanisms of action or technological platforms aimed at treating the same medical need. At this stage, competition is primarily about strategic allocation of R&D investment and the selection of scientific approaches, reflecting the dynamic nature of innovation competition. Firms decide *where* to direct scientific effort and *how much* to invest. Projects in the same innovation space compete more closely with one another than with later-stage pipeline products or marketed drugs in the same therapeutic area. The intensity and timing of investment as well as firm's capabilities in innovation spaces determine potential future market positions, making competition highly dynamic rather than static. Outcomes and successes are highly uncertain, and investments are risky.

- Clinical development/trials. The patented molecule enters human trials (Phase I, II, III). During this period, the product is commonly referred to as a *pipeline product*. It is not yet approved for sale, and success remains highly uncertain. Pipeline competition is therefore predominantly driven by dynamic capabilities and investments, where early entrants and high-probability candidates can gain a strategic advantage by strategically managing risk, timing, and resource allocation to maximise the probability of market entry. Competition occurs in two ways: (i) against marketed products, as potential future entrants, and (ii) against other pipeline products, in a race to reach the market first or with superior clinical performance While the probability of success increases as the molecule progresses through trials, achieving successful market entry remains highly uncertain due to the multiple stages of clinical development and the risk of competitors reaching the market first. Failures can occur at any clinical phase. High uncertainty, as well as therapeutic class, target population and clinical profile still evolving, makes the identification of future competitors difficult to identify clearly.

- Commercialisation of patented drugs. If clinical trials succeed and regulators grant marketing authorisation, the molecule becomes a marketed patented drug. It enjoys exclusivity for a number of years, before patent expiry, a patented drug is, in legal terms, a temporary monopoly at the molecule level during which no competitor may produce the same active ingredient. Even during exclusivity, competition remains differentiated and dynamic, as firms compete on therapeutic effectiveness,

formulation, delivery, and patient adherence, in addition to price. Firms will start investing in adapting their drugs to prolong patent protection or start investing into an entirely new product.

- **Post-patent phase (generics or biosimilars).** When exclusivity expires, other firms may develop generic (for chemical drugs) or biosimilar (for biological drugs) versions. At this stage, competition becomes more price-driven, but dynamic factors such as speed of market entry, regulatory approval, and manufacturing scale remain critical. Competition can also come from entirely new products.

443. This allows to split the competitive assessment of mergers into three categories of products and development stages that the commission has previously used in their assessment:

    i. Discovery-stage R&D projects ("innovation spaces").

    ii. Pipeline products.

    iii. Marketed drugs.

        1. Patented marketed drugs.

        2. Generics.

444. This shows that a robust framework for mergers in life sciences must therefore accommodate (i) differentiated price competition in marketed products, (ii) dynamic competition between pipeline and marketed drugs, and (iii) innovation competition in discovery and early-stage R&D. Ignoring the dynamic nature of competition at early and pipeline stages risks over- or underestimating the competitive effects of a merger.

445. This sector provides an example in which investment and innovation (here as R&D) are a critical dimension of competition—particularly in the early stages of a product's life cycle—and the Commission approaches merger effects on investment with a presumption of harm, especially where overlaps exist in early-stage pipeline products (e.g. Dow/DuPont, M.7932)[70]; Bayer/Monsanto, M. 8084[71]; Novartis/GSK Oncology, M. 7275[72]). However, the economic literature does not support such a categorical view of reduced innovation incentives following consolidation (see e.g. Denicolo and Polo, 2018; Jullien and Lefouili, 2018; Bourreau, Lefouili and Jullien, 2018). A dynamic competition lens highlights that firms' strategic investments, project selection, and risk management are central to competitive outcomes, and these dynamic capabilities may be enhanced rather than harmed by certain mergers (Teece, 2007; Teece, 1986).

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[70] European Commission (2017): Case (M. 7932), *DOW / DUPONT* ["Dow/DuPont"], Council Regulation (EC) No 139/2004, Article 8(2). Available at: https://competition-cases.ec.europa.eu/cases/M.7932. Last accessed on 16 January 2026.

[71] European Commission (2018): Case (M. 8084), *BAYER/ MONSANTO* ["Bayer/Montesanto"], Council Regulation (EC) No 139/2004, Article 8(2). Available at: https://competition-cases.ec.europa.eu/cases/M.8084. Last accessed on 16 January 2026.

[72] European Commission (2015): Case (M. 7275), *NOVARTIS / GLAXOSMITHKLINE ONCOLOGY BUSINESS* ["Novartis/GSK Oncology"], Council Regulation (EC) No 139/2004, Article 6(1)(b). Available at: https://competition-cases.ec.europa.eu/cases/M.7275. Last accessed on 16 January 2026.

In particular, a merger between a firm specialised in the discovery stage and one more with superior, dynamic capabilities in clinical development, regulatory navigation and commercialisation may increase the probability that a drug effectively reaches patients by bringing complementary assets together (Teece, 1986). Empirical work on pharmaceutical mergers similarly finds that consolidation can lead to portfolio re-optimisation and improved project selection, rather than a uniform reduction in innovative output. In such settings, mere contractual arrangements between the two firms may not be sufficient to fully align parties' interests and incentives, allocate risk, and coordinate long-horizon investment decisions, compared to integrate within a single firm (Grossman and Hart, 1986; Teece, 1986).

446. Moreover, financial conditions are also central to whether drugs reach the market. The probability of technical and regulatory success for pipeline assets varies dramatically across phases and products. Financial constraints as well as know-how mentioned above can be the binding factor that determines whether projects survive attrition and reach commercialisation. Economic research shows that mergers can alleviate financing frictions - especially in sectors like pharma where specialised expertise, tacit knowledge, and in-house scientific judgment mean that insiders are better placed than external investors to evaluate and fund risky R&D (liquidity mergers). These dynamics demonstrate that mergers can strengthen competitive positioning by enhancing firms' dynamic capabilities, enabling investment and development in high-risk, high-reward projects that otherwise might fail due to financing constraints. Despite the relevance of these mechanisms, the Commission's assessments rarely incorporate financial-ability effects into the assessment of the merger effects.

5.3.2 The Commission's current approach

447. In Dow/DuPont, the Commission formalised a three-layer framework for analysing competition along the innovation chain:

- **Actual competition** between marketed products;
- **Potential competition** between marketed and late-stage pipeline products;
- **Innovation competition**, both
  - between overlapping ongoing pipelines, and
  - between projects within the same innovation spaces.

448. This taxonomy captures an important point: any drugs belonging to the same therapeutic area exert some degree of competitive pressure on one another, either as actual competitors (if marketed) or as potential competitors (if still in development). However, at the same time, closeness of competition generally tracks the stage of development. Products or projects that are at similar stages in the life cycle typically compete more closely than those that are far apart in time.

449. A central contribution of Dow/DuPont is the explicit recognition of innovation competition as a distinct mode of rivalry. This dimension focuses on competition in investment: how many independent research programmes target a given area, with what resources, and under what incentives. Moreover, innovation competition has attracted significant attention in the economic literature, which provides clear analytical tools to evaluate merger effects on investment incentives. Our assessment of strategic effects related to R&D investment relies explicitly on these contributions.

5.3.3 Limitations of the Commission's current approach

450. The Commission's practice remains largely anchored in a price-effects mentality, organised around market definition and structural indicators. This structuralist focus tends to understate the importance of dynamic competition, investment incentives, and the role of firm-specific capabilities throughout the life cycle.

451. For generics, this approach is relatively natural: competition is predominantly price-based, and differentiation is often limited. Market shares and structural screens can play a useful screening role, as argued before.

452. For patented marketed drugs, the picture is more complex. Prior to patent expiry, the patented molecule is differentiated from other treatments. Market definition and market shares provide, at best, partial information about competitive constraints. Dynamic competitive factors, including therapeutic differentiation, formulation, delivery methods, and the timing of competitor innovation, are largely ignored. Future generic entry, which will reshape market structure after expiry, is highly uncertain at the time the merger is assessed, and structural indicators alone fail to capture the strategic interactions between firms.

453. For pipeline products, market shares are in principle impossible to compute, yet a structuralist mindset persists. In this context, the Commission often overlooks that competition at the pipeline stage is predominantly dynamic, investment-driven, and highly uncertain, rather than static and price-based. In pipeline-to-marketed overlaps, the Commission has often inferred a high risk of harm from simple structural conditions.

454. In the case of pipeline-to-marketed (i.e. potential) competition, the Commission considers that there is a competitive concern for example when one party holds a pipeline generic or biosimilar expected to enter the market within about two years, and the other party (or both parties combined) has a market share of at least 35% on any plausible market definition. This logic underpins several decisions (e.g. Pfizer/Hospira, M. 7559 [73], with references to Teva/Cephalon, M. 6258 [74] and Watson/Actavis, M. 6613[75]). The presumed mechanism is that the merged firm may

[73] European Commission (2016): Case (M. 7559), *PFIZER / HOSPIRA* ["Pfizer/Hospira"], Council Regulation (EC) No 139/2004, Article 6(1)(b). Available at: https://competition-cases.ec.europa.eu/cases/M.7559. Last accessed on 16 January 2026.
[74] European Commission (2011): Case (M. 6258), *TEVA / CEPHALON* ["Teva/Cephalon"], Council Regulation (EC) No 139/2004, Article 6(1)(b). Available at: https://competition-cases.ec.europa.eu/cases/M.6258. Last accessed on 16 January 2026.
[75] European Commission (2012): Case (M. 6613), *WATSON / ACTAVIS* ["Watson/Actavis"], Council Regulation (EC) No 139/2004, Article 6(1)(b). Available at: https://competition-cases.ec.europa.eu/cases/M.6613. Last accessed on 16 January 2026.

have an incentive to discontinue or delay the pipeline product, thereby preserving the profits of the incumbent marketed drug. However, this ignores the potential dynamic benefits of the merger, including the concentration of expertise, faster development, and improved likelihood of successful market entry (as shown by Denicolo and Polo, 2018).

455. A key omitted mechanism in the Commission's framework is the financial-ability channel. Many pipeline entrants are smaller, financially constrained firms with a limited ability to fund expensive Phase II–III trials, regulatory processes and subsequent scale-up. Acquisition by a larger firm can enhance dynamic capabilities, relax financial constraints, accelerate development and time-to-market, enable more efficient manufacturing and commercial roll-out, and increase the likelihood that the more promising project—in clinical and social terms—reaches patients. This is the classic liquidity merger logic. Even if one "overlapping" project is discontinued, consumers may benefit if the surviving project is superior, properly financed, and will reach the market faster or with higher probability. Despite its centrality to competitive dynamics, financial ability and complementarity in know-how are rarely treated as core elements of competitive assessment, appearing mostly in the context of remedy suitability rather than the theory of competitive effects itself.

456. In the case of pipeline-to-pipeline (i.e. innovation) competition, the Commission's innovation theory of harm typically focuses on the loss of independent R&D efforts: fewer parallel projects targeting the same indication are assumed to reduce innovation. The underlying mechanism is a negative "innovation diversion ratio": the merged firm internalises that success of one project cannibalises the returns to the other, thereby depressing incentives. This framing largely ignores the potential for mergers to enhance dynamic capabilities, concentrate resources, and generate complementary investment synergies that increase the success probability of innovation.

457. The economic literature paints a more nuanced picture. Denicolò and Polo (2018), for instance, show that even in a setting with no synergies or technological spillovers, positive innovation effects are entirely possible. Concentrating R&D resources in one firm may increase the probability of successful innovation, depending on the R&D technology and the structure of risks. When R&D assets are complementary, investment synergies can further strengthen incentives. These mechanisms are particularly relevant for innovation competition in discovery and early-stage spaces, where scientific uncertainty and option value are greatest, yet they are not operationalised in the Commission practice.

458. In discovery-stage R&D, case practice has evolved towards a de facto presumption of harm: the innovation diversion channel is treated as the dominant, if not unique, mechanism. This presumption overlooks that mergers can enhance dynamic capabilities, facilitate strategic investment, and support higher-probability innovation outcomes. The Denicolò-Polo logic and complementarity-based investment synergies suggest that this presumption is too strong.

459. Across these stages, financial ability is almost entirely ignored as a structural driver of innovation incentives. Liquidity-type mechanisms—where acquisition by a financially stronger and better-informed buyer allows valuable but constrained projects to proceed—are relevant throughout discovery and development, yet they do not feature in the Commission's current innovation assessment. Incorporating financial-ability and dynamic capabilities considerations would

provide a more accurate reflection of competitive effects, particularly in sectors characterised by high R&D intensity and uncertainty.

5.3.4 Proposed approach

460. The Commission should integrate the insights of the economic literature more systematically in order to properly articulate the corresponding theories of competitive effects at each stage of the development process. Currently, the Commission takes a relatively narrow approach, focusing primarily on existing markets and short-term projections, which risks overlooking important dynamic competitive interactions and the broader innovation landscape. Given the findings of this literature, pro-competitive effects should be weighed against anti-competitive risks on equal footing.

461. In particular, the Commission should explicitly incorporate two families of positive strategic effects alongside innovation diversion:

- Denicolò-Polo effects. Even when an innovation diversion effect is clearly negative - for example, when overlapping projects target the same indication, the merger can still increase the probability of success if R&D technologies exhibit certain characteristics (e.g. increasing marginal returns). Allowing for a merger that increases success probability or decreases the time to market if complementary capabilities or financial synergies are realised can be beneficial and increase consumer surplus. A merger is likely pro-competitive if it materially improves key financial and operational indicators for the merged R&D portfolio, such as:
    - Capability mapping: Pro-competitive mergers occur when complementary capabilities are combined; for example, one firm's clinical development expertise with the other's manufacturing scale, regulatory knowledge or platform technology. Anti-competitive outcomes are more likely if the merger consolidates overlapping capabilities with no clear complementarities, reducing independent R&D choices and crowding out alternative approaches.
    - Portfolio optimisation and risk diversification: Pro-competitive mergers may enable more efficient portfolio-level project selection, allowing the merged entity to reallocate capital, talent, and managerial attention towards projects with higher expected social value, while maintaining an appropriate balance between high-risk/high-reward and incremental innovation paths. By internalising risk across a broader R&D portfolio, the merged firm may increase the overall probability of at least one successful outcome or reduce time to market, particularly in therapeutic areas characterised by high attrition rates. Anti-competitive outcomes are more likely where portfolio integration leads to the systematic termination of viable projects solely to eliminate potential future rivalry, rather than to improve expected R&D efficiency.

By quantifying these changes, regulators can evaluate whether the merger increases innovation probability, shortens development timelines, and ultimately enhances consumer surplus.

- **Financial-ability effects (liquidity merger).** When one of the merging firms is financially constrained, a merger can relax funding constraints and allow valuable projects to proceed, especially in costly late-stage clinical development. This mechanism is relevant across investment-intensive stages—from late discovery to Phase III—and should be part of the Commission's analysis whenever funding risks are material. A merger is likely pro-competitive if it materially improves key financial and operational indicators for the merged R&D portfolio, such as:
    - Weighted Average Cost of Capital (WACC): A decrease in WACC post-merger indicates the merged firm can fund projects at lower financing cost, increasing the likelihood of completing high-risk trials that may have failed under capital constraints.
    - Return on Capital (ROC) for R&D projects: A significant increase in expected ROC for specific pipeline projects or innovation spaces suggests better resource allocation, improved management of attrition risk, and higher expected social value delivered.
    - Cash flow and funding flexibility: An increase in available internal cash or improved access to external financing signals that previously constrained projects can now proceed, potentially accelerating time to market.

462. If WACC remains high, ROC does not improve, cash constraints persist, and capability maps show redundancy rather than complementarity, the merger is more likely anti-competitive.

463. As a consequence, the Commission should revisit "killer acquisition" narratives. The mere discontinuation of an overlapping pipeline project does not automatically imply a welfare loss. In some cases, shutting down a less promising project to reallocate resources towards a superior asset (including a so-called "reversed killer" acquisition scenario) may be pro-competitive, provided the surviving project is indeed more likely to deliver clinical and social value post-merger. The question is not whether a project disappears, but whether the merger makes patients better or worse off given the portfolio of projects and the financial and technological constraints.

464. In sum, a sound assessment of pharmaceutical mergers should:

- integrate both negative and positive investment mechanisms identified in the economic literature;
- treat financial constraints and liquidity effects as core drivers rather than peripheral considerations; and

- evaluate the net strategic effects of the merger on investment within the core SIEC analysis, rather than presuming harm and relegating all pro-competitive mechanisms to an efficiency defence.

Appendix A. Details on the literature review

A.1 This Appendix provides additional details on the literature review included in section 3.

A.1 Beyond static competition models

A.2 The sections below present alternative modelling approaches, capable of evaluating merger effects when static competition model assumptions do not hold. For instance, cases of local markets, Bertrand with capacity constraints, mergers between intermediaries, or leader-follower models are discussed.

A.1.1 Local markets

A.3 When distance matters (typically because of transport costs), the location of the supplier is an important element of differentiation. This dimension can be easily measured, and hence the closeness of competition can be assessed directly.

A.4 In most cases, the Commission defines a local market as the catchment area of a point of sale. This is the area from which the point of sale draws between 70% and 90% of its customers or sales. The area is intended to reflect customers' willingness to travel to purchase the goods in question.

A.5 However, this is difficult to reconcile with the European Commission's definition of a relevant geographic antitrust market: “The relevant geographic market comprises the geographic area in which the undertakings involved supply or demand relevant products, in which the conditions of competition are sufficiently homogeneous for the effects of the conduct or concentration under investigation to be able to be assessed, and which can be distinguished from other geographic areas, in particular because conditions of competition are appreciably different in those areas”.

A.6 Supply-centric catchment areas cannot represent properly defined geographic antitrust markets, as the conditions of competition within these areas are far from homogeneous. Therefore, any measure of “shares” derived from these catchment areas (e.g. shares of sales made within the area) are not real “market shares” and that it would be incorrect to make a competitive assessment of the merger based on them. Structural analysis based on these metrics are also incorrect due to significant product differentiation caused by geographic location. Conversely, the analysis should focus on a direct assessment of consumer choice.

A.1.2 Bertrand-Edgeworth

A.7 The Bertrand-Edgeworth model makes the realistic assumption that firms face capacity constraint. In this setting firms may not have an incentive to undercut each other until they reach their marginal cost, because they may reach their capacity and be better off raising prices. This model can lead to various types of equilibria:

A.8 Pure strategy equilibrium: if each firm has sufficient capacity to satisfy the demand, the equilibrium price is set at marginal cost. If the market capacity is smaller, then the equilibrium price is above marginal cost.

A.9 Mixed strategy equilibria: there is no single equilibrium price, and one can rationalise a range of prices, depending on the capacity of the largest firm, and firms randomly price (or set cycles of high and low prices) in this range. Researchers have found evidence of this kind of equilibrium in practice, for example in online marketplaces.

A.10 In most cases, a merger is harmful to consumers because the merged firm has less incentive to increase quantities than pre-merger. This is confirmed by the paper of Chen and Li (2018) paper. If the merged firm is still capacity constrained post-merger, the merger has a neutral effect on consumer welfare.

A.11 However, a merger can be pro-competitive in the case of asymmetric firms and mixed equilibrium involving cycle of high and low prices. A merger that increases the runner-up's capacity without changing the leader's capacity could incentivise them to be in the lower price range more often than before. Under what conditions exactly is an open question in the literature (Hirata, 2009).

A.1.3 Merger between intermediaries

A.12 Dranove et al. (2019) find that mergers between intermediaries can lead to lower output prices under the following conditions:

i. Concentrated upstream input market and competitive downstream market;
ii. Low diversion ratio between the merging firms; and
iii. Low diversion ratio from the merging intermediaries to other intermediaries.

A.1.4 Leader-follower

A.13 In the leader-follower setting, firms compete in quantity and are divided into two groups, the leaders and the followers. The leader(s) set the quantities first. The followers then observe them and determine their own accordingly.

A.14 Daughety (1990) studies leader-generating mergers (i.e. when two followers merge to become a leader) in such a setting. He found that if the number of pre-merger leaders is sufficiently small, a leader-generating merger reduces prices and increases consumer welfare. The reason for this result is that leaders have a stronger incentive to produce more than two followers. However, this it is not measurable in practice because the model does not include assets that would allow a foundation for the size of the firms.

A.15 The model in Salant et al. (1983) faces a similar problem, where the absence of assets led to the Merger Paradox. This shortcoming of the model can be remedied to obtain a reasonable, suitable, and robust model that is suitable for real cases, making it persuasive in the case of a merger where the "leader generating merger" narrative holds.

A.2 Federico et al. (2017)

A.16 This section provides additional information regarding the Federico et al. (2017) model.

A.17 Federico et al. (2017) present a theoretical model exploring how horizontal mergers may affect investment incentives. The authors consider a scenario in which several identical research

laboratories are competing to develop a new product for a new market. Success in investment is based on probability and, when several firms succeed simultaneously, competition among their products significantly reduces profits. In this framework, each firm's investment diverts sales from its rivals, meaning profits are substantial only when one or two firms succeed.

A.18 The paper examines the impact of a merger between two research laboratories, under the assumption that both units remain operational and continue to invest in R&D. The key insight is that the merged entity internalises the sales externality between its own research units. If both units succeed, the resulting products compete with each other, reducing overall profitability. Consequently, the merged firm has less incentives to invest aggressively in R&D across both units, resulting in a reduction in total investment effort compared to the pre-merger scenario. The authors argue that, in concentrated markets, this reduction is unlikely to be offset by increased investment from non-merging firms. This could result in a decline in aggregate investment.

A.19 The authors conclude that mergers tend to reduce overall investment and consumers are always worse off after a merger.

Appendix B. Telecoms case study

Mobile mergers assessed by the Commission over the past 10 years

Country	Date of decision	Merging parties	Outcome
Austria	2012	Hutchison 3G Austria/Orange Austria	Approved with remedies
Ireland	2014	Hutchison 3G UK/Telefonica Ireland (O2)	Approved with remedies
Germany	2014	Telefonica Deutschland/E-Plus	Approved with remedies
Denmark	2015	TeliaSonera/Telenor Denmark	Withdrawn following opposition
Italy	2016	Wind/Tre[76]	Approved with remedies
UK	2016	Hutchison 3G UK/Telefonica UK (Three-O2)	Prohibited
Netherlands	2018	T-Mobile NL/Tele2 NL	Approved
Spain	2024	Orange/MásMóvil	Approved with remedies

[76] European Commission (2016): Case (M. 7758), *HUTCHISON 3G ITALY / WIND / JV* ["Wind/Tree"], Council Regulation (EC) No 139/2004, Article 8(2). Available at: https://competition-cases.ec.europa.eu/cases/M.7758. Last accessed on 16 January 2026.

Appendix C. List of abbreviations

Acronym	Definition
HMG	Horizontal Merger Guidelines
IO	Industrial organisation
IP	Intellectual property
ITOH	Innovation theory of harm
NIP	Net innovation pressure
R&D	Research and development
SIEC	Significant impediment to effective competition
TCE	Transaction cost economics
UPP	Upward pricing pressure

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