
From Microsoft to the DMA: Through the lens of behavioural economics

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At this year's European Competition Policy Forum in Como, a session discussed the impact that the Microsoft cases have had on European antitrust over the past 25 years. These cases have shaped enforcement; their influence is evident in Article 102 cases and the new Guidelines,² as well as the Digital Markets Act (DMA). I joined the panel, chaired by Jorge Padilla, with Assimakis Komninou (White & Case), Michele Polo (Bocconi University and Compass Lexecon), and Marc van der Woude (Erasmus University Rotterdam and former President of the General Court).

This article develops my contribution to the panel, which examined how behavioural economics can inform the assessment of conduct and design of remedies. It focuses on the two "tying" cases: Windows Media Player; and Internet Explorer.^{3,4} Their remedies sought to strengthen consumer choice, and they anticipate elements of the DMA's approach – most directly through the Internet Explorer choice screen, which prompted users to consider alternative browsers. Yet, the evidence that these interventions improved market outcomes is limited, which raises the question whether outcomes improved substantially *enough* to justify the costs imposed on firms and users.

Briefly, this article considers why, and what that implies for the design and timing of future interventions. I highlight six points:

- **Why the Microsoft tying cases are best understood through a behavioural lens.** These cases differ from the interoperability cases, which concerned technical barriers to rival products. Rival media players and browsers could run on *Windows*, but the design of the choice architecture, i.e., the user interface, encouraged users to adopt and continue using Microsoft's products rather than alternatives.
- **What behavioural insights tell us about the theories of harm.** Defaults, salience and familiarity can influence consumers' choices independently of product quality. But choices can also reflect rational preferences. As the Court of Justice later recognised, once conduct has distorted those choices, its effects can be difficult to disentangle qualitatively from those of product quality.
- **How behavioural insights informed remedy design.** The Internet Explorer remedy required a choice screen that actively presented rivals, with a design to address framing and ranking effects and avoid choice overload. In contrast, the Windows Media Player remedy required an unbundled version of *Windows*, but gave little consideration to users' incentives to choose it.
- **How the remedies affected outcomes.** Broadly, both remedies failed. The unbundled *Windows* barely reached users. The browser choice screen did affect outcomes, but not much: it accounted for less than two percentage points in the decline of Internet Explorer's market share.
- **Behavioural insights now underpin enforcement and regulation.** The DMA now builds on many features foreshadowed in the Internet Explorer remedy, including choice screens and safeguards against circumvention. The new Article 102 Guidelines expressly recognise inertia and behavioural bias in tying and self-preferencing.
- **Earlier intervention may help improve outcomes, but carries its own risks.** The limited impact of the Internet Explorer (and also the Google Android) choice screen may reflect deficiencies in its timing rather than its design. By the time it was introduced, it was too late to address the problem identified. But acting earlier has its own risks and, potentially, they are greater.

The Microsoft tying cases through a behavioural lens

The Windows Media Player and Internet Explorer cases provide the clearest starting point. These were “tying” cases. In both, Microsoft supplied the relevant application with *Windows*, its dominant PC operating system, which accounted for around 90% of the worldwide PC operating-system market. Users were not required to use Microsoft’s applications and could install rivals such as RealPlayer or Firefox. Nonetheless, Microsoft enjoyed a substantial distribution advantage: its applications came pre-installed and ready to use. Rivals generally had to make users aware of their products and persuade them to obtain and use them. Prominent placement of Internet Explorer’s icon on the desktop reinforced Microsoft’s advantage.⁵

The competitive significance of this arrangement depends partly on consumer behaviour. If users routinely reassess their options, search for alternatives and select the application that best meets their needs; pre-installation will confer less advantage than if they rarely reconsider the option supplied with their computer. Concepts such as consumer inertia, default effects and salience provide a framework for understanding both the scale of the potential harm and whether a remedy is likely to address it.

The Windows Media Player decision did not put much emphasis on behavioural issues – either in the substance of the assessment, or how it articulated its concerns. The remedy it proposed did not aim to overcome user inertia. In contrast, the Internet Explorer decision went further. Even though the original analysis did not systematically use the vocabulary that has subsequently developed, many of the issues it addressed and their underlying economic forces are the same.

The contrast between these cases and Microsoft’s interoperability cases helps clarify the value of behavioural insights. The interoperability disputes primarily concerned whether rivals faced structural barriers: *could* rivals’ products work effectively with Microsoft’s operating system or applications from a technical

perspective? The tying cases primarily concerned behavioural barriers: *would* consumers consider and choose alternatives even when they were technically available? The issue is that a dominant firm can discourage users from considering and choosing alternatives by altering the design of its dominant product’s “choice architecture” – how options are presented, when users encounter them, and which option applies if they take no action. Simply making alternatives technically available would not have helped, as users were never prevented from using them in the first place. It was simply that the environment made consumers likely to use Microsoft products, and unlikely to consider alternatives.

The more recent Teams cases also concern tying. Similar questions arise, but the business-customer setting changes how products are selected and used, while interoperability and switching costs also matter.⁶ Here, I focus on Windows Media Player and Internet Explorer, which provide a more direct comparison of remedies intended to strengthen consumer choice.

What behavioural insights tell us about the theories of harm

Three mechanisms help explain why making an alternative available may be insufficient.

First, **default effects** favour an option so that its use requires no additional action or effort from the user. Pre-installation of Windows Media Player and the Internet explorer effectively amounted to setting these as default media player and browser, respectively. In addition, when a user clicked on a weblink, the page would open in a particular browser by default – rather than offering a choice. Users could change that default if they actively chose to. Most users didn’t.

Second, **salience** affects which option users consider and choose. A prominent browser icon, for instance, is more likely to attract attention than a less prominent one. The presentation of options, therefore, can influence their use independently of their quality.

Third, **familiarity and status quo bias** can persist after the initial choice. Repeated exposure makes an application recognisable and establishes habits. A later prompt to choose between services may lead users back to the one they already know.

The two Microsoft cases gave different prominence to these mechanisms.

- The 2004 Windows Media Player decision recognised that rivals had to expend resources to overcome end-user inertia. Its analysis did not systematically use the language of behavioural economics, but the underlying issue was present: downloading a rival media player was not equivalent to receiving one with Windows.
- The 2009 Internet Explorer decision developed this reasoning more explicitly. The Commission's preliminary assessment was that rival browsers first had to overcome users' inertia. Survey evidence indicated that some users did not know that alternative browsers existed, did not know how to download them, or were concerned about security. Technical availability did not establish that consumers would exercise a choice.

These behavioural mechanisms do not mean that choosing a pre-installed application, or continuing to use it, necessarily reflects a bias. Consumers may have perfectly rational reasons for doing so. They may prefer it even after considering alternatives, face real switching costs, or reasonably decide that the expected benefit of an alternative is not worth the effort of finding and testing it. Defaults can also benefit users by sparing them repeated decisions that demand time, attention and mental effort.⁷

Distinguishing these explanations can be difficult. In Google Android, the Court of Justice recognised that, once conduct has been shown to distort consumer choice, it may be impossible in practice to separate the effects of that bias from the product's intrinsic characteristics, noting: "there are situations in which it is not possible to analyse whether users' behaviour is attributable to the qualitative

characteristics of the services or products of the dominant undertaking. Where it has been shown to the requisite legal standard that the manner in which consumers or users made their choice was distorted by particular conduct in such a way as to favour the dominant undertaking to the detriment of its competitors, the existence of such bias precludes a finding that that choice was, in principle, attributable to the superior performance of the dominant undertaking".⁸

Usage therefore needs to be interpreted carefully. What matters is whether a particular arrangement materially impedes competition, and whether a proposed intervention would improve outcomes for users. Usage and qualitative assessment alone will rarely answer that question; it requires empirical testing to distinguish these explanations and assess whether a remedy improves outcomes.⁹

How behavioural insights informed remedy design

The two Microsoft cases illustrate different approaches to remedy design.

In the Windows Media Player case, the Commission required Microsoft to offer a fully functioning version of Windows without the media player: i.e., an "unbundled" version. It ensured *structural* safeguards, seeking to prevent Microsoft from undermining the unbundled option through technical constraints. However, it did not consider the behavioural aspects of the choice architecture to the same extent. For instance, it did not require Microsoft to sell the unbundled version at a lower price or prompt users to reconsider their media-player choice. It created an opportunity to choose, but provided little additional encouragement to ensure users exercised that opportunity.¹⁰

In contrast, the Internet Explorer remedy foreshadows the behavioural insights that underpin the DMA. In particular, the commitments required that *Windows* users would be shown a choice screen presenting competing browsers. This sought to address the behavioural barrier: users would encounter alternatives without first having to search for them, and

would be prompted to make an active decision that they might otherwise never consider.

Requiring a choice screen alone may not be sufficient to overcome behavioural barriers; its specific choice architecture matters. Not unlike the DMA's current compliance process,¹¹ following consultation on Microsoft's proposed commitments, the design was amended to address several behavioural effects:¹²

- **Framing.** The screen would appear without the usual Internet Explorer menus and controls, reducing the visual cues that could favour Microsoft's browser.
- **Ranking effects.** Microsoft's proposal listed browsers alphabetically by vendor. The final design displayed them in random order, avoiding a systematic advantage based on position in the list.
- **Choice overload.** Presentation of the options was also stratified: the five leading browsers were immediately visible, with seven others accessible by scrolling down. This balanced inclusiveness against the risk that presenting too many options would discourage users from engaging at all.
- **Circumvention.** Microsoft committed not to undermine the intervention or discourage users from selecting other browsers. This sought to prevent other aspects of its conduct or interface design from negating the choice screen's effect.

Why the remedies failed to materially improve outcomes

At first sight, the remedies might appear to have worked. Microsoft's position weakened in both markets after the interventions: Windows Media Player market share fell significantly from 2005, while Internet Explorer's share in Europe fell dramatically from around 45% in January 2010 to 17% in March 2015.¹³

But other developments, unrelated to the remedies, may explain these changes. For instance, new challengers emerged: Apple launched its iTunes Music Store in major European markets in 2004, and YouTube

followed in 2005. Internet Explorer, meanwhile, faced competition from Chrome, launched in 2008. These developments gave consumers both new stimulus and reasons to choose alternatives to Microsoft's products: iTunes and YouTube changed how consumers accessed music and video, reducing their reliance on standalone media players; and Chrome attracted a favourable reputation for its speed, ease of use and integrated search.¹⁴

Perhaps, however, the two factors had complementary and reinforcing effects. The remedies may have helped those alternatives emerge and grow. The choice screen might, for instance, have helped Chrome attract users who would otherwise have stayed with Internet Explorer. Sadly, not: two pieces of evidence help us disentangle the effects.

The Windows Media Player remedy was particularly ineffective: the unbundled version of Windows reached few users. In April 2006, Microsoft reported selling just 1,787 copies of the unbundled version to European retailers and distributors over nine months, compared with 35.5 million copies of the standard version. No PC manufacturer had ordered or pre-installed it. That is unsurprising, as users could obtain the bundled version at the same price as the unbundled version. So, whatever drove the wider changes in media consumption, very few users encountered Windows without Media Player through this remedy.¹⁵

The fall of Internet Explorer also had little to do with the choice screen for browsers: it lost substantial market share in all countries, whether or not users there encountered a choice screen. A study published in *the Journal of Competition Law & Economics* in 2023 compared the decline in both sets of countries and estimated that the additional decline attributable to the choice screen was less than two percentage points – a tiny fraction of its overall decline. Most of the overall decline occurred even without the choice screen.¹⁶

The remedies, therefore, did little to shift users towards rivals. The unbundled version of Windows barely reached them; the choice screen reached them, but had little influence.

Nonetheless, the approaches – rightly – have become influential, underpinning the current approach to enforcement and regulation.

Behavioural insights now underpin enforcement and regulation

In subsequent enforcement of Article 102, the *Google Android* case provides a clear successor to the Microsoft tying cases. In 2018, the Commission found, among other infringements, that Google had unlawfully tied the Google Search app and Chrome to the Play Store. Google subsequently introduced a search choice screen as part of its response.¹⁷

The DMA extended the use of behavioural insights. Its 2020 impact assessment explicitly discussed the tendency to retain pre-installed software, drawing on the Google Android and Microsoft Internet Explorer cases.¹⁸

Article 6(3) requires gatekeepers to facilitate changes to defaults and, in specified circumstances, prompt users to choose their browser, search engine, or virtual assistant from a list of providers. Articles 8 and 13 require effective compliance and prohibit circumvention, including through interface design. This continues the concern evident in the Internet Explorer commitments: an apparently compliant interface can still steer users away from alternatives.¹⁹

The Commission's Article 102 Guidelines, adopted in September 2026, also expressly recognise behavioural mechanisms. Paragraph 178(e) identifies consumer inertia or bias as relevant to the exclusionary effects of tying, with references to the Microsoft and Android cases. Paragraph 196(c) addresses how self-preferencing can influence users independently of a product's intrinsic qualities, including through behavioural bias. Behavioural insights now have an explicit place in the framework for assessing abuse.²⁰

Earlier intervention may help but carries its own risks

The remedies in the Microsoft tying cases had limited impact. So too did the search-engine choice screen introduced following the Google Android case. A study published in the

American Economic Journal: Microeconomics in 2025 estimated that the intervention reduced Google's share of mobile search in the European Economic Area by less than one percentage point.²¹ Should we be sceptical, therefore, that such remedies are necessary, and even if they are, should we be sceptical that these specific remedies are effective? Possibly, but there are two reasons not to jump to these conclusions.

Firstly, the eventual replacement of incumbents by competitors does not necessarily mean that there is no problem for remedies to address: it is the nature of technological innovations that they are eventually displaced by the next generation of technology. But a long period of dominance may persist before that next disruption emerges.

Secondly, the modest effect achieved by these remedies may have more to do with their timing than their design. By the time they were implemented, users had years of experience with the incumbent's service. Asking them to select a provider does little to remove the brand familiarity that favours an incumbent. For precisely these reasons, in my review of the DMA compliance process I warned against the expectation that compliance would necessarily change outcomes: for the products the DMA regulates, user behaviour and preferences may have already calcified.²² Earlier intervention, while those habits and preferences are still forming, may have greater scope to affect outcomes.

The emergence of generative AI provides a setting in which to examine whether earlier intervention can do better: acting before dominance becomes entrenched or consumer behaviour becomes ingrained. But earlier intervention also carries additional risk. While these markets may have initially appeared likely to tip in favour of a particular product and insulate it from further competition, they may instead sustain competition among several; the digital markets of the future may operate differently from those of the recent past.

There is always a risk that regulators prepare and mobilise to fight the previous war, not the next one. For instance, would requiring

Google to offer users a choice of generative AI services within Google Search help competition, or would such a remedy distort competition in markets whose dynamics are still emerging and taking shape?

These questions are unlikely to be settled by first principles or qualitative argument alone. The Microsoft cases also suggest it is risky, or at least ineffectual, to wait and see if a problem emerges – and only seek to address it once it is too late to do so.

The decision whether, when and how to intervene could potentially be informed by cost-

benefit analysis. This should compare the expected gains from protecting competition with the costs imposed on firms and users, weighing both the risk of unnecessary intervention and the harm that delay could allow to persist. Empirical testing can contribute evidence on how different remedies affect users' choices, whether they continue to use alternatives, and what costs the changes impose. As with other interventions, the assessment should ultimately aim to establish whether acting earlier offers greater expected net benefits than waiting or allowing competition to develop without intervention.

Endnotes and references

- ¹ Zita Vasas is a Senior Vice President at Compass Lexecon and thanks Andrew Tuffin, the Research Team and other colleagues at Compass Lexecon for their support and feedback. The views expressed, however, are those of the author and do not necessarily represent those of Compass Lexecon or its clients.
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