



Data as the new measure of competition

It is well understood that data, and large quantities of them, are a necessary fuel to train artificial intelligence (AI) engines. This article first considers some common ways big data has become a measure of competition, and second provides an overview of what anti-competitive conduct may be associated with data collection and exploitation in AI markets.

When competition authorities refer to measures of competition in the traditional sense, they typically refer to price, quantity, quality, choice and innovation, usually in that order. In the context of digital markets however, the competitive arena is generally different. Price and quantity commonly do not play a decisive role, whilst quality, choice and innovation are of greater importance. In addition, for many data-based businesses, their ability to collect and commercialize data, an activity closely linked to quality, choice and innovation, has become a competition measure in and of itself.

For a long time firms have collected and used data (e.g. customer databases) to optimize their businesses and gain a competitive edge. Until relatively recently this activity has really only raised data protection concerns. That is now changing. AI and machine learning have enabled certain firms to extend the type, volume and sources of data radically, giving them a competitive edge. Competition authorities have taken an increasing interest in how the ownership of big data can raise competition law concerns.



Data as a measure of competition

Many businesses have exploited the collection and use of large unique datasets as a basis on which to compete in various ways. Commonly, it involves consumers voluntarily providing a firm with personal data in return for a free product or service (e.g. access to a social media or price comparison platform), which is then financed by selling the data on to other customers (e.g. advertisers). Google's search engine and Facebook's social network are two prominent examples of businesses which have employed big data to achieve substantial profits.

An approach of this nature is being considered by the European Parliament Committee on Legal Affairs. It is not a novel approach and it has a number of similarities with the accident compensation scheme, which has almost eliminated personal injury litigation in New Zealand. Strict liability regimes may be implemented as a matter of public policy to encourage the highest standards of care where protection of the public is paramount.

Some common ways firms use AI and big data to compete include:

- Decision science – e.g.
 - Analyzing customer reviews to support future product development.
 - Analyzing customer behavior to improve content marketing to customer services to upsell opportunities.
- Data exploration – e.g.
 - Monitoring customer surfing habits to serve advertisements to specific users.
 - Generating new business leads by analyzing unstructured data such as emails, phone calls and social posts to determine patterns and define who is a good prospect.

- Social analytics – e.g. tracking success of a firm's advertising campaign by social media exposure.
- Performance management – e.g.
 - Identifying a firm's most profitable customer segments and geographies.
 - Estimating return on investment more accurately by analyzing pay-per-click spend or trade show attendance. Where a firm owns a larger, more diverse dataset, which can be searched and generally exploited with greater ease, it is likely to be more successful at commercializing it.



Competition concerns

Using AI in combination with big data can create economic efficiencies and pro-competitive effects, for instance by making it easier to identify what customers really need and, at the same time, reducing the costs of production and distribution. However, under certain circumstances, it may also be a factor contributing to competition concerns, including: (1) increasing market power and raising barriers to entry; (2) increasing market transparency and facilitating collusion; (3) giving rise to various exclusionary practices available to dominant firms; and (4) merger control issues.

(1) Market power

Where access to a large volume or variety of data is important to a particular market, it can form the basis of market power. New entrants are likely to face barriers to entry as they try building up their datasets to compete with those of the incumbents.

New entrants may collect data directly from their customers or may also buy access to customer data from third parties. However, collection of data from scratch can be difficult. Where a firm attempts to build these datasets through its own customers, it may struggle if an established firm has already developed a significant network, which has won the trust and/or favour of a significant number of consumers. Equally, a new firm cannot rely on purchasing datasets from third parties, as they may not be willing to part with these assets to competitors.

Competition issues are more likely to arise where there is a relatively high level of concentration in the market and/or the likelihood of collusion in the market is higher. However, even a firm with very low "market share" (e.g. based on revenues) but with access to scarce and valuable data may be found to have market power.

(2) Collusion

The increasing transparency of prices and characteristics of goods and services can have a positive impact on consumers, giving rise to more informed choices – e.g. Amazon Marketplace allows consumers to compare prices and conditions offered by its hosted retailers. However, the greater availability of information online may also limit competition by facilitating price coordination: in transparent markets, firms can more easily monitor each other's actions, and frequent interactions enable them to punish deviations. Coordination is more likely to take place in markets where large volumes of pricing data are publicly available and products are relatively undifferentiated, in particular retail, consumer-oriented businesses.

In an online environment, the development of sophisticated algorithms has further increased the likelihood of collusion. Algorithms have now been developed which monitor, analyse and even anticipate competitors' responses to current and future prices. For example, in 2016 the UK Competition and Market's Authority found that two poster/frame retailers (Trod Ltd and GB eye Ltd) breached competition law by using automated re-pricing software to monitor and adjust their prices, making sure that neither was undercutting the other. As algorithms become more sophisticated (e.g. with machine learning) and data sets become more readily available, the prevalence of such online collusion is likely to increase.

(3) Refusal to supply / Exclusivity

Whilst it is rare in practice, a dominant firm may breach competition law if it holds a unique data set which is essential to a third party's development of new products and refuses to supply that data to third parties. For example, in 2007 the European Court of First Instance (now the General Court) found that Microsoft had breached competition law by refusing to give its downstream competitors access to the minimum interoperability information necessary to allow them to effectively compete in work group operating systems markets. Also, in 2009 the Spanish National Competition Commission fined four electricity companies for refusing to provide access to databases on consumers' supply points to competitor Centrica. In such cases, under UK/EU law, a dominant firm may be required to share data with a competitor if the data are both unique and necessary for the development of a new product or service in another market for which there is potential consumer demand.

(4) Mergers – access to new data

Competition concerns are likely to arise where the combination of two different data troves creates a unique data set, which cannot be replicated by competitors and could become an essential input (i.e. a data set that is essential for a company to compete on a particular market) for customers. The European Commission considered this in the Google/DoubleClick (2008), Facebook/WhatsApp (2014), and Apple/Shazam (2018) mergers, but ultimately concluded that it would not create a competitive advantage as the datasets involved, while commercially valuable, were often not unique and could be replicated. Privacy concerns have also arisen in mergers involving large volumes of personal data (e.g. Facebook/WhatsApp), and in Microsoft/LinkedIn, the Commission acknowledge that data privacy is also an important measure of competition.



Conclusion

For the time being, the rise of big data in combination with AI is unlikely to change the fundamentals of UK / EU existing competition law frameworks. However, competition authorities in Europe and beyond are beginning to pay closer attention to the effects of AI and big data on competition. For example, the UK's Competition and Markets Authority is currently establishing a new Data Unit across different disciplines to increase its understanding of the impact that data, machine learning and other algorithms have on markets and people. In May 2016, the German Federal Cartel Office and the French antitrust authority published a joint report on theories of harm connected to big data. More recently in February 2018, the Canada competition authority published a report on big data and innovation, concluding that *"the emergence of firms that control and exploit data can raise new challenges for competition law enforcement ... [but] ... the fundamental aspects of the analytical framework (e.g., market definition, market power, competitive effects) should continue to guide enforcement"*.

As national competition authorities become more attuned to tackling anti-competitive uses of big data and AI, business should be mindful of the following:

- Using pricing algorithms to collude with other businesses will give rise to a competition law infringement (even if there is no direct contact between individuals).
- Even where a pricing algorithm is not programmed to collude, a business may still breach competition law where the algorithm starts doing so on its own accord through machine learning, and the business has not built appropriate safeguards into the algorithm to prevent it from colluding with other business' systems.
- Where a dominant firm holds a unique big data set which holds significant value to the production process, that firm should consider taking advice where it is considering limiting third-party access to that data.
- In terms of merger control inquiries, firms should note that competition authorities are likely to take into account any big data sets held by the parties to consider, among other things, whether the combined firm will become the only party to hold these data and therefore increase its market power.

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