



POLICY BRIEF

Regulation of online platforms - What can we learn from 150 years of telecoms regulation?

Dr Steve Unger



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Preface by Diane Coyle

Regulation is an essential part of the wiring of everyday life but it can seem a very technical, even dull, subject. Businesses tend to complain about the constraints it imposes on them, yet would have to accept that regulation also helps them by setting standards that enable markets to grow and by making competition and innovation possible. In this policy brief Steve Unger draws on his unparalleled experience of communications market regulation to set out the lessons past regulatory experience holds for online platforms and the digital economy.

It is hard to overstate how important these have become to everyone, something which gives the major platforms tremendous power. Not surprisingly, concern about how that is exercised and the wide-ranging consequences has been growing. As this policy brief notes, the pitch of concern means additional regulation is now inevitable - but there is correspondingly a risk it will be introduced hastily and with adverse unintended consequences.

We are delighted to publish this rich and thoughtful contribution to the debate as part of our portfolio of research and engagement on technology policy, including also our [Digital State program](#) and our [Valuing Data project](#) for the Nuffield Foundation.

Diane Coyle

Bennett Professor of Public Policy, Cambridge

Introduction

How to address competition concerns associated with online platforms has become a pressing policy question around the world. For example, in the UK we have seen the recent publication of ‘Unlocking digital competition’ (the Furman Review),¹ and in the EU we have seen the report ‘Competition policy for the digital era’ by a panel of expert advisors appointed by Commissioner Vestager.²

I’ve spent much of my career worrying about competition in telecommunications, in particular how to address concerns arising from the enduring dominance of incumbents such as BT. Last year I stepped down from the Board of Ofcom, the UK’s communications regulator, and have been considering how to apply the lessons learnt promoting competition in traditional communications markets to online platforms.

Whilst the focus of this article is competition policy, it’s important to note that the debate about online competition issues does not take place in isolation. Other questions are in play, including:

- How to protect users of online platforms from harmful content, with a recent proposal from the UK government that online platforms should have a new duty of care.³
- How to protect the privacy of those using online services, following the recent introduction of the GDPR regulation⁴, whilst still enabling innovation in the data economy.
- How to exploit the potential of Artificial Intelligence, whilst ensuring that human beings are treated in an ethical manner.⁵

These are difficult issues individually, and they have also had a cumulative effect. The feature of the current debate about online platforms that I find most striking is how much general attitudes have shifted over a very small number of years. A sector of the economy which used to be admired for its innovation is now seen by many as a source of harm, and an inevitable target of regulation.

This shift in sentiment is understandable but it is also dangerous. It creates a risk of poorly designed interventions which do more harm than good.

The power held by online platforms does raise concerns, and I believe that a new regulatory framework will be required to address these. At the same time, we must not forget the level of innovation which has been enabled by online platforms, and the extent to which the services they provide have transformed peoples’ lives for the better. The development of a new

¹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf

² ‘Competition policy for the digital era by Jacques Cremer, Yves-Alexandre de Montjoye and Heike Schweitzer, April 2019 <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>

³ <https://www.gov.uk/government/consultations/online-harms-white-paper>

⁴ https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en

⁵ <https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai>

regulatory framework requires a measured approach, which respects this innovation, and ensures that it can continue.

Parallels with the regulation of telecoms networks

Those who have written on online competition frequently draw parallels with the history of telecoms regulation. Given my own background, I'm particularly interested in what can be learnt from this history. That's not because I expect the historic approach to telecoms to be directly applicable to online platforms. Indeed, as I discuss below, there are some important differences. But it's usually sensible when looking at a new problem to ask what lessons can be learnt from experience.

I start by using the history of telecoms regulation to make a couple of general observations.

First, it is generally much easier to identify a competition concern than it is to fix it. In the UK we've spent about 150 years trying to develop an effective policy framework for telecommunications. But the concerns that were identified in the 19th century remain the key drivers of policy debate in the 21st.

Markets are never perfect, and it is often easy to point to outcomes which are poor. It is much more difficult to design regulatory frameworks which are practical to implement and deliver better outcomes. A degree of humility is therefore required of regulators.

Secondly, the history of telecoms regulation has often been driven by ideological positions. Two debates in particular have played out over many years:

- i) The respective merits of public versus private ownership of communications networks.
- ii) Whether the primary focus of regulators should be on the promotion of competition, or the use of regulation to deliver specific outcomes.

However, the lesson from history is that abstract ideology is rarely a good basis for policy. We should be pragmatic, blending what works from different approaches, rather than setting up an abstract choice between them.

I start my analysis with a brief overview of how telecommunications regulation has developed over the last 150 years, in order to illustrate these general points.

I then move on to consider the extent to which some of the specific solutions adopted for telecoms are relevant to online platforms.

A brief history of telecoms regulation

As far as the UK is concerned, this history starts over 150 years ago, with the deployment of the first form of electronic communications, the electric telegraph. The first electric telegraph line to become operational anywhere in the world was in the UK and provided a telegraph service between London and Birmingham in 1837. This was closely followed by other countries (the US in 1844, France in 1845).⁶

In the UK and US these early electric telegraph networks were privately owned, and their early deployment was driven by competition between different networks. In most other European countries these networks were state-owned.

However, whereas electronic communications networks in the US remained in private ownership, this early experiment with network-based competition in the UK was not to last.

One of the first reviews ever carried out into an electronic communications market was the review into the operation of the electric telegraph carried out by Frank Ives Scudamore and published in 1866. It identified the following concerns:

“1st. That the existing charges for the transmission of messages are too high, and tend to check the growth of telegraphic correspondence

2nd. That under the existing system there is often very great and vexatious delay in the transmission of messages, and much inaccuracy in the rendering of the same

3rd. That many important towns, and even whole districts are unprovided with facilities for telegraphic communication”

These same three concerns – high prices, poor quality of service and limited availability – have featured prominently in many investigations in the subsequent 150 years.

In 1866 the solution adopted was to nationalise the provision of electronic communications, in order to eliminate what Scudamore referred to as ‘wasteful competition’. That experiment lasted over a hundred years, until 1982 when the BT network was transferred back into the private sector. The reasons given for privatisation - that it would deliver “stable prices, improved efficiency and a higher quality of service”⁷ - closely mirrored the original rationale for nationalisation.

To this day we are still looking for an answer to these concerns, suggesting perhaps that there is no perfect answer.

When BT was privatised there was a recognition that it was likely to dominate the market for telecommunications for some time. Regulation would therefore be required, and the UK’s first independent regulator was created, the Office of Telecommunications.

However, there was also an expectation that this need for regulation would only be temporary, and that eventually we would see the creation of a competitive market. For example, in 1983

⁶ For more detail of these early networks see “The Victorian Internet” by Tom Standage, first published in 1999.

⁷ The Future of Telecommunications in Britain, Statement in the House of Commons by the Secretary of State for Industry, 19 July 1982.

Stephen Littlechild (a leading architect of the economic regulation of privatised industries) wrote that:⁸

“Competition is indisputably the most effective means – perhaps ultimately the only effective means – of protecting consumers against monopoly power. Regulation is essentially a means of preventing the worst excesses of monopoly; it is not a substitute for competition. It is a means of ‘holding the fort’ until competition arrives.”

However, telecoms regulators have ended up “holding the fort” for very much longer than was originally expected. This is even though over a period of several decades a variety of attempts have been made to introduce competition into the UK market:

- For more than a decade after BT was privatised policy makers in the UK prioritised the creation of ‘network competition’. Companies were encouraged to enter the telecoms market and build their own networks in order to compete on an end-to-end basis with BT. However, that model of competition turned out to be unsustainable, due to the scale economies intrinsic to telecoms networks. Most of the companies that tried to compete with BT on that basis went bust (including the company that I was working for at that time).⁹
- Towards the end of the 1990s policy makers in the UK, as well as elsewhere in Europe, turned to an alternative model of ‘access-based competition’. This model accepts that telecoms networks are to a certain extent a natural monopoly. It attempts to identify the specific components of telecoms networks which give rise to this natural monopoly, because they cannot be replicated by competing network operators. Competing operators are then provided with access to these components, in the form of services such as ‘local loop unbundling’, in the hope that competition will then be possible elsewhere in the network.
- When Ofcom was created in 2003 it initiated a Strategic Review of Telecommunications.¹⁰ This concluded that access-based competition had not been effective in the UK. The reason identified was that the wholesale products which BT provided to its competitors were inferior to those which it supplied to itself. In 2005 an agreement was reached between Ofcom and BT which separated the part of the network that was thought to be a natural monopoly from the rest of BT. The new entity, Openreach, was structured so as to minimise the risk that it would discriminate against BT’s competitors.
- In 2015 Ofcom carried out its second review of digital communications,¹¹ which I was responsible for leading. A key conclusion was that whilst the creation of Openreach had resulted in substantial retail competition, the lack of competitive pressure on Openreach meant that consumer outcomes were poor. The service delivered by Openreach, as a monopoly supplier of wholesale services, was too often ‘equally poor

⁸ Regulation of British Telecommunications’ Profitability, Report to the Secretary of State, Stephen Littlechild, February 1983.

⁹ Ionica was the first telecoms operator to be granted a licence after the abolition of the BT/Mercury duopoly. It was based in Cambridge, and its plan was to build a nationwide fixed-wireless network to compete with BT’s fixed-line network. It was placed into administration in October 1998, by which time its network covered 2.8 million homes.

¹⁰ http://static.ofcom.org.uk/static/telecoms_review/index.htm

¹¹ <https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/digital-comms-review>

for everyone'. We decided we needed to encourage more competition to Openreach and made several changes to the regulatory framework to make this type of network competition more sustainable than it had originally been. Time will tell if these changes have been effective.

The decades of telecoms policy since BT was privatised can be regarded as a voyage of discovery. During that voyage we have tried to understand which parts of the market are capable of sustaining competition, what model of competition is most likely to deliver good consumer outcomes, and how to regulate what's left in a manner that is targeted and effective.

We're now at the start of a similar voyage in relation to online platforms.

Platform competition – what concern are we trying to address?

It's always important to specify precisely what the basis is of any competition concern before deciding how to address it. That should be obvious but is worth restating given the highly politicised nature of the current debate about platform competition.

The first and most important characteristic of online platforms which I would like to highlight is that they are not the same. A search engine is not the same as an app-store, a subscription movie service is not the same as a social network. It is clearly important that any specific regulatory intervention is targeted at a specific concern and takes account of the context within that concern arises.

That said, online platforms do share some common characteristics. There are broadly three types of competition concern which tend to recur in different combinations across different platforms.

First, the nature of online platforms is such that everyone wants to connect to the same platform. These **network effects** mean that at any point in time there are likely to be only a small number of platforms in the market, each with high market shares. Network effects can be divided into two classes:

- Direct network effects typically occur when everyone using a platform benefits from interacting with everyone else on the platform. This is the case for a telephone network, a messaging platform, or a social network. The value of such a network depends on the number of direct connections which can be made between individual users, and increases as the square of the number of users.
- Indirect network effects typically occur when a platform brings together two different types of user. Examples include e-commerce platforms (which bring together buyers and sellers of goods) and content distribution platforms funded by advertising (which bring together advertisers and viewers). Each side of such platforms benefits from having more people to interact with.

Secondly, the value of many online platforms depends on **the accumulation of consumer data**. As these platforms grow, they gather more data. This effects competition through several different mechanisms:

- Over time individual consumers invest more of their time and money in specific platforms, either by uploading their own personal data, including content such as photos and videos, or by purchasing professionally produced content. This makes it less likely that they will switch to other platforms.
- Platforms are able to aggregate the data provided by individual consumers and use this to optimise the performance of their platforms. Data on consumer preferences helps platforms design new services and target them at those consumers most likely to be interested. Aggregation of consumer data results in strong economies of scale for the provision of individual services, and economies of scope between different services which exploit similar consumer data.
- Online platforms are making increased use of machine learning to develop new services. The basic mathematics which underpins this technology is not new, nor can it be controlled by any one company. However, the current explosion in applications is being driven by the ability to access large datasets, and this risks further cementing the dominance of those platforms which control these.

Thirdly, there is a concern that once platforms have become established, they become **gatekeepers for other services**. This allows them to extend their dominance into other markets by discriminating against those other services which they regard as competitors.

In what follows I consider each of these categories of competition concern and ask what we can learn from historic approaches to telecoms regulation.

Network Effects and the importance of Interconnection

Network effects are a key characteristic of both online platforms and traditional telecoms networks. As noted above, they arise because the value of a network depends on the number of connections it enables, which depends on the square of the number of users. Network effects are in general beneficial, indeed a network which did not benefit from network effects would be rather pointless.

Historically this has driven different telecoms networks, with different geographic coverage, to interconnect with each other. This maximises the benefits associated with network effects, by allowing users to communicate with each other regardless of the network to which they are attached. In such circumstances the networks are generally complements to each other, rather than being in competition. Interconnection increases the value of both networks, creating a strong incentive to reach a commercial agreement.

The most important modern example of interconnection is the set of agreements that make the global internet a reality. The internet is not a single network, but a large number of different networks connected together; at the date of writing this article the internet contained around 65,000 different individual networks.¹² The internet looks like a single network to consumers because technical standards have been agreed which make it possible for data traffic to pass

¹² The statistic given here is the number of different 'Autonomous Systems' which have been allocated a unique identifier by the Internet Assigned Numbers Authority.

from any of its constituent networks to any other, and commercial terms have been agreed which govern how payment is made for carrying this data.

Commercially negotiated interconnection agreements have a very long history, dating back to the 'Victorian Internet' enabled by the electric telegraph. The Paris Telegraph Convention of 1865,¹³ which marked the foundation of the International Telecommunications Union, was also responsible for the first multilateral interconnection agreement. This standardized the operation of electric telegraphy across Europe, agreed a common set of tariffs, and adopted Morse code as the first technical standard for interconnection between different national networks.

However, there is not always an incentive to agree commercial terms for interconnection. When most users are already attached to a single incumbent network, the owner of that network has little incentive to agree interconnection with other networks. When those other networks are potential competitors the incumbents' incentive is to deny interconnection in order to protect its own position.

It is for this reason that telecoms regulators seeking to introduce competition to markets dominated by an incumbent have often intervened to require interconnection. For example, interconnection was seen as a key enabler for the introduction of competition to the UK market during the 1990s. A statement on interconnection issued by the Director General of Telecommunications in 1992¹⁴ noted that:

"I have always been clear that the terms and conditions on which interconnection was available for operators would be a key issue in the development of competition in telecommunications.... Given the importance of interconnection and the inequality of bargaining power between BT and competing operators, leaving too much to the process of negotiation is risky"

Oftel spent much of the subsequent decade addressing this issue, resolving a variety of disputes over the technical and commercial terms on which interconnection was available. This work continued when Ofcom took over from Oftel in 2003, and even now remains an important part of Ofcom's work programme.

Given the importance of interconnection as a mechanism for maximising the benefits associated with network effects in telecoms, and minimizing associated competition concerns, a number of commentators have considered whether a similar approach might also be applied to online platforms.

What I learnt from my work in this area is that whilst mandated interconnection can seem simple in principle, it is rarely straightforward to implement in practice. Even where different networks offer similar services, minor differences in technical characteristics introduce complexity. This complexity increases further if there are material differences in service characteristics.

Furthermore, mandated interconnection makes it more difficult for individual networks to innovate. If they wish to introduce a new feature, that will often (though not always) require

¹³ The *Paris Telegraph Convention* and its Annex *Regulation of International Service to supplement the provisions of the Telegraph Convention in Paris*. It is interesting to note that the UK was excluded from this inter-governmental meeting, since at that time the electric telegraph networks in the UK were under private control.

¹⁴ "Policy on Separation and Interconnection", statement by the Director General of Telecommunications, June 1992.

agreement as to how the feature will be supported across multiple networks. As a practical example, it has long been recognised that a better mechanism is required for authenticating the identity of the person making a telephone call, in order to be able to take effective action against nuisance calls. But efforts to agree a mechanism for achieving this have thus far proved inconclusive.

This trade-off was recognised in the report produced by the EU expert advisors. This report refers to interconnection as ‘full protocol interoperability’ (for reasons I’ll come back to below) and states that:¹⁵

“Full protocol interoperability has the benefit that positive network effects stemming from the large user base of one platform extend to other platforms – in other words, through the imposition of interoperability requirements, the benefits of positive network effects can be shared among direct competitors. In this perspective, interconnection could be an efficient instrument to address concentration tendencies.

On the other hand, full protocol interoperability can come at a high price: the need for strong standardisation across several competing platforms could significantly dampen their ability to innovate and to differentiate the type(s) of service(s) they provide”

So, it is worth asking whether there is an alternative to mandated interconnection. And it is important to note that there is one very important difference between traditional telephone networks and online platforms.

Network effects were important for traditional telephone networks because each telephone is connected to a specific network by a dedicated physical connection. Interconnection between telephone networks was the only available means of ensuring that a telephone in one home could connect to a telephone in any other home.

The position with online platforms is very different. The data networks over which online platforms operate have a ‘layered’ architecture whereas traditional telephone networks were designed in a more monolithic manner. The architecture adopted by the internet assumes a distinct physical layer, data layer, network layer, transport layer and application layer.

The different networks which make up the internet interconnect with each at the network layer. Interconnection is implemented at this layer because this is the form of interconnection which is most straightforward.¹⁶

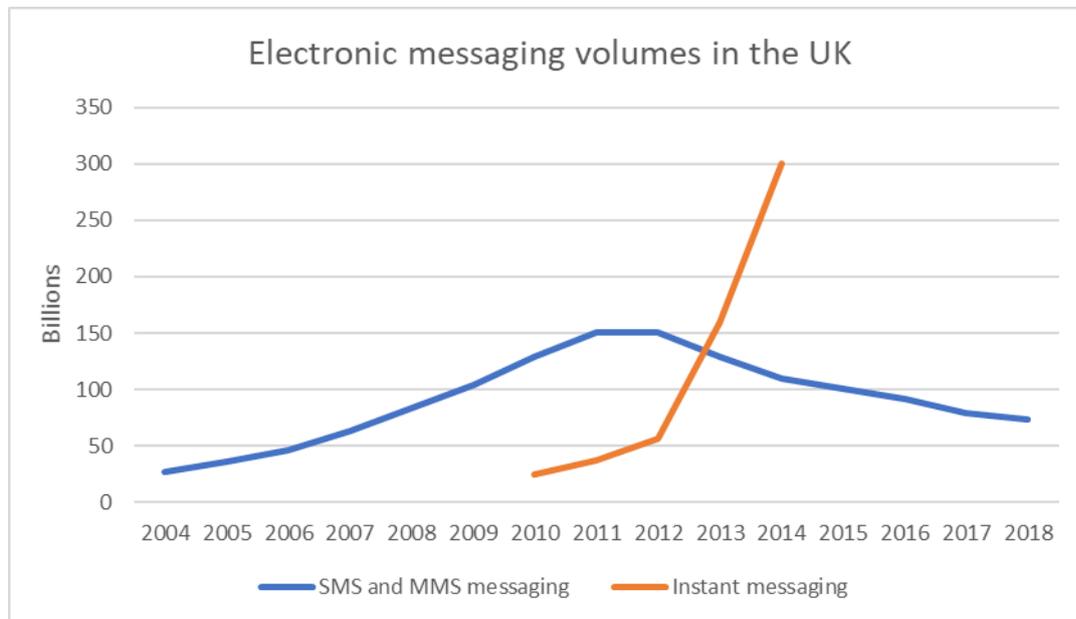
So, when commentators suggest that online platforms should interconnect with each other, what they really mean is the existing network-layer interconnection should be extended to the application-layer (hence the reference by the EU expert panel to full protocol interoperability).

However, the network-layer interconnection used by the global internet means that any device in the world can already connect to any other. And every device is capable of supporting multiple applications which can be used interchangeably, a characteristic known as ‘multi-homing’. Multi-homing makes it possible for any consumer to connect to any other consumer, even if they are using different applications, simply by switching application.

¹⁵ See p.59 of “Competition policy for the digital era” by Jacques Cremer, Yves-Alexandre de Montjoye and Heike Schweitzer. <http://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>

¹⁶ Another architecture which is widely referred to is the ‘Open Systems Interconnection’ architecture, which defines 7 layers: physical, data link, network, transport, session, presentation, application. See ‘Protocol Layering and Internet Policy’ by Christopher Yoo for a more detailed discussion.

There is disagreement amongst commentators about the extent to which multihoming reduces the need for application-layer interconnection. A piece of evidence which I find compelling is the rate at which instant messaging services such as WhatsApp displaced traditional text messages. The graph below shows the substantial growth in text message volumes during the first decade of this century, followed by the sharp decline as text messaging was displaced by instant messaging.¹⁷



This dramatic shift from text messaging to instant messaging happened despite the importance of network effects for messaging services, and despite the fact that text messaging and instant messaging did not interconnect with each other. Multi-homing made it straightforward for consumers to use different instant messaging services for different sets of contacts, and still use text messaging for those contacts who had not migrated to any instant messaging service.

So, a priority for online regulation should be to maximise the potential benefits of multihoming. At the very least platform operators should not be permitted to degrade the performance of competing services which are delivered over their platform. It would also be important to ensure that certain basic platform capabilities, such as access to a common address book, continue to be made available on an equivalent basis to all service providers.

Such an approach reduces the barriers to entry traditionally associated with network effects, whilst at the same time ensuring that different service providers are able to differentiate their services from each other. The result for consumers is real choice, an ability to choose between different services with different features.

¹⁷ The volumes of SMS and MMS messages given here are from Ofcom and are based on actual data supplied by operators to Ofcom. The volumes for instant messaging are from Deloitte, and are estimates published in its 2014 report on 'Technology Media and Telecommunications Predictions'.

Switching costs and the importance of Data Portability

A further competition concern arises as consumers invest more of their time and money in specific platforms, either by uploading their own personal data, or by purchasing professionally produced content. The result is that consumers are less likely to be willing to switch to new platforms.

There is a close parallel between this issue, and the switching costs that were historically associated with ownership of telephone numbers. Consumers moving from one telephone network to another had to tell all their contacts their new telephone number, reprint stationary, and so on. The resulting hassle made consumers reluctant to switch.

The solution historically adopted by telecoms regulators has been to require network operators to implement 'number portability'. This gave individual consumers a right to take their number with them and established processes which make this straightforward.

Various commentators have therefore suggested that 'data portability' obligations might be imposed on platforms, allowing consumers to take their data with them as they move from one platform to another.

It's worth noting that we are already part way towards implementing data portability, in that consumers do have the right to download the personal data. Whilst writing this article I tested my ability to download the data held on me by several different platforms, and the process was straightforward.

However, the process had little practical value, for three reasons:

- Some data has no value once removed from the platform on which it originates. For example, I can download the posts which I have contributed to discussions on Facebook and LinkedIn, but these lose their meaning once it is no longer possible to see the rest of the discussion.
- Some data might have value if I was able to upload it to a new platform, but there is no means of doing so. For example, I can download my Netflix viewing history, but I cannot upload it to another streaming platform, in order to improve the quality of the viewing recommendations on that platform.
- The most valuable data which I own is professionally produced content which is encrypted using Digital Rights Management. There have been attempts to establish mechanisms for moving such content between platforms, notably the 'Ultraviolet' initiative by a group of Hollywood Studios, but these have had limited success¹⁸.

Based on the historic experience of telephone number portability, I am sure that it would be possible to implement a more effective approach to data portability. An important first step would be to understand what data is likely to have a material impact on consumers' willingness to switch; much of the data which is held by online platforms is ephemeral, and so is unlikely to have a material impact on switching. A targeted approach such as this would then make it

¹⁸ Ultraviolet launched in 2011 and ceased operations at the end of July 2019. It allowed consumers to purchase digital versions of content from most of the major Hollywood studios and access that content from a variety of different streaming platforms.

possible to identify a standard format for the data which consumers need to be able to port, and an associated transfer process.

Data as a source of economies of scale and scope

As noted above, the accumulation of data by platforms does not just increase switching costs for individual consumers. It also allows platform operators to optimise their overall performance. This is generally beneficial, but might also make it more difficult for new platforms to enter the market.

The more data that platforms have, the better they are able to optimise their performance. This results in economies of scale for the provision of individual services, and economies of scope between different services.

The competition concerns that arise from these effects are, in principle, a greater concern than those that arise from network effects.

- Network effects typically result in one platform having a high market share at a given point in time, but also make it possible for the identity of that platform to change. If a new platform enters the market with a superior service, and consumers start switching to that service, then eventually a tipping point will be reached, and the new platform will become the dominant player. The market is contestable, making it unlikely that a dominant platform will be able to abuse their position and remain dominant.
- The economies of scale and scope associated with control of data grow over time. This means that platforms which have become dominant due to network effects are able to entrench that dominance through the control of data. The lack of contestability increases the risk of platforms abusing their dominance.

Of course, in practice only a subset of the data collected by platforms is likely to have a material impact on competition. We live in a world where, for better or worse, all sorts of businesses, not just online platforms, collect data on their customers. Whether the aggregation of a specific type of data creates a material competition concern depends on various factors, including:

- The nature of the data that is required to optimise different services. For data to be useful as a means of optimising a service it must be relevant to that service, include information on the various parameters that drive demand to a service, and in a manner that is as far as possible free of selection biases. Data quality may be at least as important as data quantity.
- The extent to which different datasets are substitutable for each other, and available to different platforms, including new entrants. There is only likely to be an adverse impact on competition if access to all the data required to optimise a specific service is controlled by a small number of powerful platforms.

So, in order to make progress, policy makers need to develop a better understanding of how the data economy works in practice. That is essential if any intervention is to be both targeted and effective. Note that I made a similar point previously when discussing the impact of data on consumer switching.

There is something of a parallel here with the approach which has historically been taken to competition issues in paid-for television. A long-standing concern in such markets has been that dominant TV platforms have used their exclusive control of key content rights to protect their position. In the UK, Sky was able to establish a dominant position in sports broadcasting by acquiring exclusive access to ‘must have’ content rights, notably live Premier league football¹⁹. But other segments of the Pay TV market proved to be contestable, because it was possible for new entrants such as Netflix to find substitutes for the content rights held by the incumbent.

It was important that the competition analysis carried out for television platforms precisely identified that ‘must have’ content which is important for the development of new platforms. The same is true for the data held by online platforms.

Having established whether there is such a thing as ‘must have’ data, and what it is, the key question for regulators is how to ensure challenger platforms can access it. There is a parallel here with both television platforms (where access to must-have content has been mandated by regulation) and telecoms regulation (where access to network components deemed essential to competition has been mandated by regulation).

It has been suggested that a similar approach might be taken to data, for example the Furman review proposed the creation of a digital markets unit and suggested that it:

“would be able to advance data openness where access to non-personal or anonymised data will tackle the key barrier to entry in a digital market, while protecting privacy”

However, the framing of this suggestion recognises a very specific challenge associated with opening up access to data. Much of the most important data is likely to be personal in nature, and so raise privacy issues.

This issue is well recognised, and one way forward might be to focus on non-personal or anonymised data. For example, it clearly makes sense to see what can be achieved through the application of open data principles to non-personal data. And a natural starting point would be to explore how far we might be able to increase access to key datasets that are controlled by the public sector.

However, there are likely to be a number of datasets which are commercially valuable precisely because they do contain personal data. It is that personal data which provides platforms with the insights into consumer behaviour which they need in order to optimise their services.

Such datasets can be shared where individual consumers provide consent, but this is unlikely to be an effective mechanism for challenger platforms to be able to construct the large and unbiased datasets which will be required to optimise their services.

It also seems unlikely that providing access to anonymised data is an effective way forward. The more data is anonymised, the less useful it is likely to be. And even data which has been anonymised can be used to derive personal information in a manner that falls foul of privacy regulation.

An example is the series of events that followed the introduction of the “Netflix Prize” in 2006. Netflix provided a training dataset comprising the ratings that users had given to movies and awarded a prize to the algorithm that most effectively predicted the rating that users would give to other movies. The dataset contained over 100 million ratings provided by 480,000

¹⁹ See for example https://www.ofcom.org.uk/consultations-and-statements/category-1/second_paytv

subscribers for nearly 18,000 different movies.²⁰ The dataset was anonymised by removing the identities of the users who had generated these ratings.

However, in 2010 the competition was terminated. Even though the training dataset had been anonymised, it proved possible to identify users by matching the data to film ratings published elsewhere.²¹ The US Federal Trade Commission launched an investigation, which resulted in Netflix making a series of commitments about how it would conduct any future competition.²² In practice Netflix did not repeat the exercise.

There is no easy answer here. But one step forward might be create a regulatory ‘sandbox’ within the framework provided by existing data protection rules. This would relax the rules that usually apply to data sharing, whilst setting strict limits on how the results of any analysis can be used, and requiring systems to be in place to demonstrate compliance with those limits.

Clearly, such proposals are likely to be controversial. However, if we are unable to make it easier for companies to share data on a voluntary basis, then mandating access to key data will remain a pipe dream.

Platforms as gatekeepers to other services

An important characteristic of many online platforms is that they act as ‘gatekeepers’, controlling access by consumers to other services. They might achieve this by controlling the way consumers find services (as it the case for search engines) or the means by which they purchase them (as is the case for app stores). These platforms therefore have the ability to direct consumers towards their own services and discriminate against competing services.

This has a close parallel with the way telecoms operators have historically controlled the ‘last mile’ access networks which provide connectivity to peoples’ homes. This confers a gatekeeper role on such operators, enabling them to extend their control of the network into related markets. They have been able to do so either by:

- Bundling the provision of network connectivity with other services. For example, for many years telephone network operators insisted that consumers must purchase telephones from them, as part of their telephony service;

or

- Using their control of the network to discriminate against competing services. For example, the ‘Net Neutrality’ debate arose out of concerns that operators might manage the traffic carried over their network so as to favour their own content services, and degrade services provided by their competitors.

²⁰ “The Netflix Prize” by James Bennett and Stan Lanning. Proceedings of KDD Cup and Workshop 2007. https://web.archive.org/web/20070927051207/http://www.netflixprize.com/assets/NetflixPrizeKDD_to_a_ppear.pdf

²¹ “Robust De-anonymization of Large Sparse Datasets” by Arvind Narayanan and Vitaly Shmatikov, see http://www.cs.utexas.edu/~shmat/shmat_oak08netflix.pdf

²² Letter from Maneesha Mithal (Associate Director, Division of Privacy and Identity Protection, FTC) dated March 12 2010. See https://www.ftc.gov/sites/default/files/documents/closing_letters/netflix-inc./100312netflixletter.pdf

The first of these concerns has traditionally been addressed by ‘unbundling’ the different elements of a service, so that they can be sold separately, and establishing an interoperability standard which enables these different components to work together efficiently.

The classic example of this type of intervention relates to the example given above, the supply of telephones. Historically, consumers were not permitted to attach any device to the network other than the telephone supplied by the network operator. However, whilst telephone networks are often natural monopolies, the same is not true of telephones. One of the first steps taken to liberalise telecoms markets was therefore to open up the supply of telephones to competition:

- In the United States the 1968 Carterfone decision allowed any device to be connected to the AT&T network via an electronic interface, as long as it did not cause harm to the system.²³
- In the United Kingdom one of first liberalisation measures taken following the privatisation of BT was the establishment of an interface standard designed to allow telephones from competing suppliers to be attached to the BT network.²⁴

This has perhaps been one of the most successful interventions by telecoms regulators. It enabled several waves of innovation; from wireless handsets, to dial-up modems as a means of accessing the early internet, and WiFi routers a means of connecting any device in a home to broadband.

It is important to note though that establishing interoperability standards may not always be practical, and usually involves some additional cost. It involves taking a complex system, identifying a point within that system where a boundary can sensibly be drawn, because the interactions which take place across the boundary are not overly complex. It is then necessary to define precisely how the sub-systems on either side of that boundary work together. The process of establishing detailed interoperability standards between telephones and telephone networks took many years.

In relation to online platforms it will be important to consider carefully where it makes sense to draw boundaries, and where it does not. A good starting point might be to focus on understanding those boundaries which have already been defined on a commercial basis; for example, smartphone manufacturers already use Application Programming Interfaces to allow app developers to access key features of their platforms. Where commercial interfaces do not exist, or are incomplete, it would then be important to understand whether this is for reasons which are anti-competitive in nature, or simply because the development of such an interface would be technically complex.

The second category of concern is that platforms might use their power as gatekeepers to discriminate against competing services. In other words, even though a competing service is capable in principle of operating independently of the platform, in practice the platform operator has the ability to degrade it.

This type of concern is a long-standing one for telecoms regulation, where incumbent telecoms operators often have a gatekeeper role in relation to services delivered over their networks. It

²³ “Use of the Carterfone Device in Message Toll Telephone Service”, June 1968. See <https://web.archive.org/web/20150120021035/http://www.uiowa.edu/~cyberlaw/FCCOps/1968/13F2-420.html>

²⁴ The Future of Telecommunications in Britain, Presented to Parliament by the Secretary of State for Industry, July 1982.

has historically led to the establishment of behavioural rules designed to prevent discrimination. In some extreme cases, where those rules have proved ineffective, structural remedies have been imposed which separate out the competitive supply of service from the underlying platform, in order to remove the incentive to discriminate.²⁵

An example of a framework designed to prevent discrimination is that associated with the EU Net Neutrality regulation.²⁶ This prevents telecoms providers from blocking or throttling the traffic associated with competing content services. And it has been suggested that similar rules might apply to online platforms, for example the 'Device Neutrality' rules which have been proposed by the French regulator ARCEP.²⁷

At a high level, the principle that powerful platforms with gatekeeper power should not discriminate against competing services should be uncontroversial. But determining what this means in practice is complex, for a couple of reasons:

- Firstly, some forms of discrimination are beneficial. We all want telephone networks to prioritise emergency calls over other traffic, we want platforms to protect our security by limiting access to sensitive information, we want online publishers to curate content so that we are presented with material that is relevant. Practical experience shows that it can be difficult to design rules which distinguish between 'good' and 'bad' discrimination.
- Secondly, rules governing discrimination need to be enforceable. The history of telecoms regulation is littered with complex behavioural rules which sounded good in theory but proved to be ineffective in practice.

So further work is required to work through the detail. And a question that is much debated is how best to approach that task. At present the approach being taken within Europe is the standard approach taken by competition authorities. This involves assessing the behaviour of companies after the event (*ex post*) and imposing financial penalties where that behaviour is deemed in retrospect to have been inappropriate.

This approach has the advantage that interventions can be based on detailed evidence of actual behaviour, but an associated disadvantage that interventions may come too late to make a difference.

Several commentators have therefore asked whether online platforms should be subject to the same type of *ex ante* rules that have historically been used in telecoms. For example, the Furman Review suggested that:

“moving from a purely *ex post* approach towards *ex ante* monitoring and enforcement of a clearer and more detailed set of rules should help to prevent negative outcomes before they occur, or at least remedy them before it is too late for the parties involved”

It would clearly not be appropriate to replicate the type of detailed *ex ante* regulation that applies in telecoms to online platforms. The pace of change is too fast for such an approach to be effective, and the risk to innovation too high.

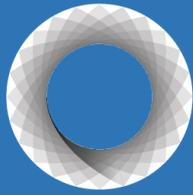
²⁵ The classic UK example is the legal separation of Openreach from the rest of BT. See <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2017/bt-agrees-to-legal-separation-of-openreach>

²⁶ See <https://ec.europa.eu/digital-single-market/en/open-internet-net-neutrality>

²⁷ See https://www.arcep.fr/uploads/tx_qspublication/rapport-terminaux-fev2018-ENG.pdf

However, I do think policy makers need to provide companies with a greater degree of certainty than is currently available. Recent *ex post* competition cases within Europe have resulted in punitive fines being applied to specific platforms. However, the priority appears to be to deter behaviour which might be anti-competitive, rather than help companies understand what type of behaviour is likely to be acceptable. This is not an effective means of encouraging innovation by existing platforms, or the growth of new platforms.

It would therefore make sense for competition authorities to provide additional *ex ante* guidance as to what factors will be taken into consideration when deciding whether the behaviour of online platforms is anti-competitive. This would need to be detailed enough to provide greater business certainty to online platforms, both entrants and incumbents, without being as prescriptive as traditional telecoms regulation.



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