3

Overcoming Market Power in Online Video Platforms

ELI M. NOAM ■

THE MARKET STRUCTURE OF ONLINE VIDEO

Few questions are fraught with more long-term implications than the way we shape our communications system. If the medium is indeed the message, and if these messages influence people and institutions, then tomorrow's media, and today's media policies, will govern future society, culture, and economy.[1]

It is therefore important to recognize that we are on the verge of an enormous leap in media and communications, and consequently also of one of its major disruptions of social and economic arrangements. It is the transition of TV media into its third generation—following broadcasting and multichannel—online video. There are many positive aspects to this emerging online video system, but also troubling ones. In no particular order, the latter include privacy, security, morality, piracy, accessibility, affordability, national culture, consumer protection, and antisocial behaviour. All these—and others—are significant problems. And yet, arguably, the major policy issue is *digital dominance*. Many other problems flow from such market power. (Conversely, several problems might be alleviated by it.)

It is complex and expensive to do digital platforms and services well. Multiple systems need be in place and be integrated. Processes must operate at almost lightning speed, with great reliability, easy scalability, user friendliness, and flexibility of configuration. They must be secure, with marketing and branding advantages, and able to implement technologies for content and advertising such as individualization. They must integrate several core competencies and operations in what might be called a 'video cloud': running a video platform facing the user and filling it with content; operating an infrastructure platform to store, process, connect, and deliver content; and extracting and deploying data. This favours large

providers that have the advantage of economies of scale and scope, and the related factors of network effects, economies of distance and of data, and the synergies of vertical integration.

There are significant advantages to scale in digital platforms. The largest providers have the greatest choice in applications, content, and advanced technology, which attracts users. Users, in turn, attract other users through network effects. A large user base attracts applications providers (at a lower price), advertisers (at a higher price), and still more users (at a higher price.) At the same time, it also lowers its unit cost. Thus, large providers have a distinct advantage, for example, in generating the functionalities of interactivity, individualization, or peer-to-peer (P2P) operations, all of which require high capital outlays to create but are relatively cheap to operate subsequently. There are also major advantages of connection to data, to advertising, and to content aggregation. In combination, economies of scope, scale, and verticality create winner-takes-all scenarios for infrastructure and for usage on platforms, leading to a highly concentrated digital industry.

When the market structure of digital platforms is uncompetitive, the results are likely to be:

- Market power over users who could not easily switch ('consumer lock-in').
- Reduced competition, higher prices, and lower innovation ('monopoly power').
- Difficulty for users of one platform to interact with users and elements of other platforms ('fragmentation').
- A vertical chain of service elements closed to most outside providers ('walled garden').
- The reduced diversity of applications and content sources ('narrowcasting').
- A constricted access to users by content providers, often domestic ones, and a resultant stronger economic, cultural, and political influence of the platform ('gatekeeping').
- Market power over outside providers of hardware, software, transmission, and content, who fear exclusion ('foreclosure').

While such dynamics apply to just about all aspects of digital platforms, they raise special concern when it comes to media applications. Media concentration, of course, is nothing new (Noam 2016). What is different in the digital economy is its extreme global extension by the top providers. In consequence, the focus of this chapter is the market power of digital media, specifically in video entertainment, and what to do about it.

First, some empirical data to quantify the issue. Table 3.1 provides our calculations of the concentrations of various submarkets of online video in the United

Table 3.1 Market Shares of Video Platforms (USA)[a]

Media Type	HHI	Market Leaders
Internet Service Providers, 2018[b]	2,259	Regional Cable Operator (30%) Regional Telecom Wireline Operator (16%) National Mobile Operators (53%: Verizon: 23.5%, AT&T: 15.3%, T-Mobile/Sprint: 14.2%)
Public Content Delivery Networks, 2017/18[c]	1,828	Akamai (31%) Amazon/Fastly (16%) Google (16%)
Public Online Infrastructure Platforms, 2017[d]	2,611	Amazon Web Services (41.5%) Microsoft Azure (29.4%)
Subscription-Based Streaming Video Content Platforms, 2019		
USA[e]	3,097	Netflix (49.4%) Disney (Hulu and ESPN) (20.2%) Amazon Prime Video (10.1%)
Europe (18 Countries)[f]	3,221	Netflix (52%) Amazon Prime Video (21%)
Advertising-Supported Video Platforms, 2018[g]	1,916	Google YouTube (33.2%) Verizon Media (16.4%) Facebook (15.2%)
Live TV Streaming Services, 2019[h]	2,218	Disney Hulu Live TV (29.1%) Dish/Sling TV (29%) Google YouTube TV (17.3%)
Social Media Streaming Platforms, 2018[i]	3,537	Facebook (incl. Instagram) (41.9%) Google YouTube (38.7%) Amazon Twitch.tv (16.6%)
US Online Advertising Market, 2019[j]	1,940	Google (37.1%) Facebook (20.6%)
Content Platforms for User-Generated Content, 2015[k]		
USA	2,968	Google YouTube (54%)
UK	2,651	Google YouTube (51%)
France	3,258	Google YouTube (52%) Vivendi Dailymotion (23%)
Japan	3,633	Google YouTube (53%) NicoNico (28%)
Content Production and Acquisition, 2019[l]	1,238	Disney (23%) Comcast, Netflix, Viacom, each 12.4% AT&T 11.7%
Consumer Streaming Devices, 2019[m]	2,829	Apple (37.5%) Samsung (14.3%) Amazon (1.2%)
Total Weighted Average	2,473	

(*continued*)

Table 3.1 Continued

[a] Full data tables are available (Noam 2021a and 2021b.)
[b] Based on reported 'Data Revenues' from company annual reports. Telecom wireline and cable companies in the United States operate regionally, and a regional market concentration is therefore more instructive than national figures, since there is almost no intraindustry overlap. The two major telecom wireline ISPs are also the major nationwide wireless providers, and their national wireless market shares are added to their regional wireline shares. Their market shares are based on reported revenues for wireless 'Data Services'.
[c] Developed from company reports.
[d] Calculated with data from McAfee (Coles 2018).
[e] Calculated from market shares developed using 2019 revenue data. Where revenue data were not directly available, they were calculated by multiplying the number of subscribers by annual subscription price.
[f] Calculated with data from Kagan Research (O'Halloran 2019).
[g] Calculated from market shares developed by obtaining 2018 unique monthly visitors to various streaming services (Statista 2018).
[h] Calculated from market shares developed from 2019 subscription and user numbers. Data from *Variety* (Spangler 2019) and *The Motley Fool* (Sun 2019).
[i] Calculated from market shares developed from 2018 minutes spent watching particular advertising supported outlets (also used: Tran 2017).
[j] Calculated with transnational data from Nikki Wardle (2018).
[k] Calculated with data from Ofcom (2015), also using data from Statista (2015).
[l] Based on Variety Intelligence Platform (Bridge 2020). Allocation of general media companies to online video 33%.
[m] Consumer streaming device subsegments are smartphones, tablets, laptops, and TV streaming devices. Market shares and revenues for each subsegment from Statista. Allocated 30% of smartphone revenues and 20% of laptop revenues to video, based on usage. Overall segment market shares and HHI weighted averages based on revenues.

States, as measured by the Herfindahl-Hirschman Index (HHI). (An index over 2,500 is considered to indicate a highly concentrated market.)

Thus, we observe a high market concentration in most online media activities. Weighted by the size of the subindustry, the average sector market concentration is at an HHI figure of 2,437, just about at the threshold of 'highly concentrated' by the US Government's definition of 2,500.

This high number is not surprising. Concentration has always been extreme in telecom-type infrastructure networks, which were considered, for a long time, a 'natural' monopoly. It has also been high in TV networks, film distribution, major websites, and information technology (IT). The same is true for newer Internet activities such as social media, web browsers, search engines, etc. Given all the incidence of market power in the sub elements of online video, it would be surprising if such power did not emerge for online video as a whole.

OPTIONS TO REDUCE DIGITAL DOMINANCE IN ONLINE VIDEO PLATFORMS

Given the passion over a concentration in the digital sector, it is predictable that market power in the online video area will lead to regulatory responses. The obvious reason for the stronger concern over concentration in media and information is that most people desire a greater diversity in their information sources than in their computer hardware. They wish more choices for themselves and for the political process. They consider media to be a different category from other industries and functionalities, with a key role in politics and culture. And of media, none is more broadly influential than video. In consequence, regulatory approaches to deal with digital dominance are quite likely to emerge first for video media operations. From there, they might spread. Wherever digital interventions are going, video media are likely to be there first.

There are several basic approaches to deal with market power, especially in an essential service:

- Separation of infrastructure and distribution from the production of the good and service itself.
- Market share ceilings.
- Governmental or public service provision.
- Licensing subject to conditions.
- Restrictions of extensions to other product lines.
- Unbundling of product elements.
- Regulation of prices and of firm behaviour.
- Nonapproval of mergers, and divestitures/break-ups of parts of existing firms.
- Ownership and cross-ownership restrictions.
- Foreign ownership limitations and quotas on foreign imports.
- Establishment of a public utility status for dominant firms.
- Interoperability and access requirements to the bottleneck facilities of dominant firms.

Each of these approaches has some advantages but is also problematic in one way or another. For example, a vertical break-up or separation would reduce foreclosure but still leave intact the main source of market power, the domination in one segment. A behavioural regulation would limit conduct harmful to consumers and other providers, but requires constant governmental intervention in a fast-moving field. A public utility status would reduce the exercise of monopoly power but entrench it. Space does not permit an analysis.[2] We do, however, discuss a proposal based on the last option, that of access. While the analysis focuses on streaming video, it is similarly applicable to most situations of digital dominance.

THE OPEN VIDEO SYSTEM

Overview

The option proposed here is to establish an *open video system*. It is based on access, not on break-up. It incorporates aspects of several other approaches. There are three basic elements to this system. All can be applicable to other segments of the digital economy.

1. There are access rights to infrastructure and platform elements, where significant media market power (SMMP) exists. Such access rights exist for the users/consumers and for the users' delegated *information intermediaries*.[3]
2. Such access would be accomplished through interfaces that must be offered by platforms that possess SMMP. These are known as Applications Program Interfaces (APIs), a way to let software by other parties interoperate with the platform's software.
3. Conditions of access would be governed by the nondiscriminatory principle of 'most favoured nation', subject to arbitration by a self-regulatory process.

We now discuss these elements, starting with a key element, the information intermediaries.

Information Intermediaries

The key to dealing with market power is to give users a meaningful choice among providers[4] and, where some large companies hold advantages that are insurmountable in the short term, to give smaller providers the opportunity to compete. A meaningful user choice requires an enabling of a new type of operator, namely 'information intermediaries' that would act on behalf of customers to seek the best options. Most consumers are busy and technically unsophisticated. To make the option of choice practical for them, they should be able to delegate the implementation of their digital activities to professional intermediaries. Figure 3.1 shows this schematically. Intermediary 1 operates between the end user and the several video platforms, A and B. (There would be multiple intermediaries for an end user to choose from, but they are not charted so as to reduce clutter.) The figure also shows the access of other providers, such as an Independent, to those platforms, enabling such a firm to access a bottleneck facility held by the platform.

For example, an information intermediary could recommend and select content, if it could access and review the content catalogues of several platforms and their price for viewing. Based on the intermediary's own information about the films, plus the user preferences communicated to it, plus past user choices, its own algorithms would make choices or recommendations.

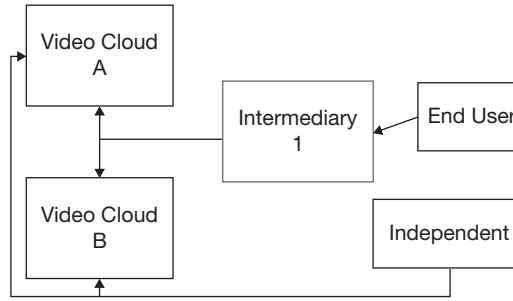

Figure 3.1 Information Intermediaries

For online video, the information intermediary's functions might include:

- Search for content following instructions and parameters set by the end user.
- Find the most favourable option in terms of content and price, and negotiate on behalf of the end user for favourable terms.
- Filter out undesirable videos, such as those with profanity, sex, violence, or hate, per end user instructions.
- Deal with payments to platforms for subscriptions and single videos, and bill the end user periodically.
- Set data privacy settings on behalf of its clients, monitor what happens to that data subsequently, and collect royalties for the use of customer data, where such use was agreed upon.
- Deploy its own algorithms, or those of independent algorithm providers.
- Set up and update technology tools, such as encryption, anonymization, and other techniques to enable users to create electronic moats around their information.
- Select infrastructure elements of the pathway from the video provider to the end user.
- Play a role in selecting advertisements, based on instructions by users in which products and types of ads they are interested in.

Such a system would create user choice in search, algorithms, data control, content filtering, and infrastructure.

Business Models for Information Intermediaries

There could be a variety of business models for the information intermediaries:

- A for-profit company offering subscriptions.
- A charitable provision by an NGO such as a church organization.

- An ideological provision by organizations with a definite perspective, as a service to its adherents.
- A community effort by an open-source cooperative.
- An advertising-based service, with the ability to insert ads that reach its consumer clients.
- A vendor-oriented service, with commission payments from platforms for mediating access to buyers.
- A subsidized service, as an offshoot of public service broadcasting or of a public university.
- An offering by a large tech or media company as part of its more general applications suite, for example by Google as part of its search functionalities. (In that case, the company would have to demonstrate that it would not give any preference to its own content platform.)
- A feature offered by a consumer electronics company such as Samsung, and baked into its TV set to attract buyers.
- A collaborative operation by rival smaller platforms as a way to divert some viewers from the dominant platform with SMMP.
- A service by an infrastructure network company such as Verizon or Vodafone as a feature of its transmission network.
- A feature by credit card companies as a supplementary service to their customers.
- Commissions for the authorized sale of anonymized user data or bulk data to third parties (data brokerage).
- Commissions from app developers for app sales through the intermediary (similar to other 'app stores').
- Fees by third parties for extra services, such as analytics-as-a-service, for example on how video products are appreciated by customers.
- A membership model in which the users of a platform, such as an organization of independent film-makers, become participants in a cooperative data management operation, supported by their membership fees plus possible additional fees.
- An industry-wide cooperative of multiple for-profit service providers and platforms.[5]

Most likely are hybrid models that combine several of these approaches. For example, a 'freemium' model with the free use of basic functionalities, but additional service level requiring payment. More generally, the wide variety of business models and types of organizations indicates a potentially vigorous presence of intermediaries. They require, however, a mechanism to interoperate with dominant platforms.

Access Arrangements

Video platforms with significant market power (SMP) would be potentially open to rival providers of content or services in several ways, including through the

proprietary interoperation arrangements. These APIs are designed to allow outside programmers and companies access to a portion of the system, without giving them full access. Netflix used to provide a free public API which gave such access to its film and TV series catalogue. This allowed independent programmers to plug in and develop consumer products. An example was the app 'A Better Queue', which made recommendations of movies worth watching on Netflix. This service, and others like it, were ended when Netflix closed off the API in 2014, limiting access to select partners.[6]

There have been no regulatory requirements for API access arrangements. But nothing on a constitutional level (in the United States) prevents government regulation of APIs.[7] [8] In several cases, companies with market power have been compelled to open up their information and share it in the past (European Commission 2007).[9] [10] On a practical level, cybersecurity is an issue to consider. API access makes it easier to hack the platform. To deal with that, there could instead be a list of acceptable third parties that can gain these APIs, as long as no favouritism is provided to allies of the platform company.

The overall principle should be that companies with SMMP need to give an API access that is sufficient to achieve the remediation of their dominance by providing consumers with realistic alternatives.

Administration

The administration of access arrangements would be based on basic principles set by a governmental regulator. But the implementation and specifics would be by a consortium of stakeholders, both from the private sector, and importantly, also from the NGO sector. Thus, the third element of the system is *self-administration and arbitration*. To the extent that no agreement is reached, it would be taken up by the regulatory agency.

User choice does not mean that all options will be available. Regulators could set ceilings or floors on certain transactions. For example, child porn or cyberbullying might be restricted on any platform and through any intermediary. These regulated limits need not be identical globally but can vary by jurisdiction.

Market Definition

One of the main tasks for the self-regulatory mechanism would be to delineate market definitions. A key question to determining the market share is how that market is defined. It cannot be defined too narrowly or else just about every company would have SMMP in its sliver of a market. But if the definition is too wide, none would have more than a minor share of a huge market. What makes sense is to match the 'significant' media market power with 'significant segments' of the media market that make economic and intuitive sense. For example, the markets could be the major links in the chain of the online video market: content

production, aggregation, content platforms, data operations, infrastructure platforms, Internet Service Providers (ISPs), and consumer media devices.

Access Provision by Whom?

Which companies must offer access? Requiring every last tiny operator to do so would be a regulatory overkill. And what purpose would it serve? For a company, having a small market share means, by definition, that there are important alternatives for users, suppliers, or customers.[11]

What should a test for market power be? It should be based on a clear standard that is based on empirical and analytical observations of the behaviour of dominant firms and of tight oligopolies. In the United States, the Department of Justice's Merger Guidelines define a concentrated industry rather than a single firm's market power. The HHI[12] sets 2,500 as a 'highly concentrated industry'. This measure would occur, for example, in a market with four firms, each holding 25% of the market; or with one firm with 40% and two with 21%. In Europe, market share is one factor of several, but the unofficial shorthand number is often given as 30%. In most industries, a firm with a market share of more than 30% would be considered to have SMP. However, for the media sector, a special sensitivity to high market concentration and gatekeeping power applies, and it might result in a stricter standard. Such a threshold can be termed 'significant *media* market power', or SMMP. A company with a market share of over 25% would be considered to have SMMP. Even this is a fairly high threshold, considering that it means that two such companies could together control half of the market. A high market share alone is not sufficient to establish the possession of SMP (dominance), but it is unlikely that a firm without a significant share of the relevant market would be in a dominant position. The market share threshold number would therefore be a rebuttable presumption for SMP.

A company with SMMP in a particular market segment would have to provide access in that specific segment, in an unbundled fashion.[13]

The Pricing of Access

How much a dominant firm could charge for the access to its segments is a perennially difficult question. One approach would be to establish, in effect, regulated public utility pricing based on some formula, such as that of rate of return, or on avoided cost, or on benchmarks set by others, or on past prices. A second approach is that of straight cost engineering, including that of 'forward-looking long-run incremental cost pricing'. One calculates the extra cost for the company to create and build the segment given new technology, and adds a reasonable profit margin on top (Deloitte 2014; Noam 2001). A third approach is to require 'nondiscrimination' in pricing (Wu 2003). A version of this approach is a 'most-favoured nation' model, which means that similarly positioned customers,

intermediary information curators, or rivals must be treated similarly in terms of price and service conditions.[14] The approach originates in the world of trade negotiations, where countries agreed that a tariff rate set by a country on a product from a second country would have to apply to the same product exported by a third country.

Nondiscrimination does not solve the problem of a provider of an element charging *all* rival users a monopoly price—as long as the same price is extracted from all. To deal with that one would have to add a test for 'fair and reasonable' on top of the nondiscrimination test. In the IT world this process is known as 'Fair, Reasonable, and Non-Discriminatory' (FRAND) pricing. It originated as a way to set the price charged by company A to its rival B for a patent license. FRAND pricing is most commonly seen in situations in which some users benefit from the technology developed by others, e.g., for video codecs or for mobile telecommunications. It is established through an industry organization or industry standards committee that would include the major stakeholders, including users. They set up a process for determining FRAND conditions. Even more important, this sets up a self-regulatory mechanism to adjudicate complaints and have its decisions adhered to (Lewis 2014; Rypka 2018).

Accessibility

Access rights (or 'accessibility') can operate in several directions: *upstream* (towards the content creation); *downstream* (towards the user); and *sideways* (towards parallel elements; for example, an infrastructure network operator may want access to another infrastructure network operator in order to expand its geographical range; in an interactive game, users want access to other users.)[15]

Accessibility to Content Producers and Aggregators

Content products cannot usually be accessed as a right. The speech rights of content producers mean that they can control whom they speak to. There are exceptions, however, in traditional TV media. In some countries, highly important sports events are accessible to all distribution networks that wish to do so.[16] This reduces the ability of a rights holder to extract monopoly profits from pay-viewers or advertisers.

More significant is the system of 'compulsory licenses'. For music, anyone has rights, without any special permission, to song compositions and lyrics created and copyrighted by others, to perform them freely, and to sell recordings. A governmentally set fee must be paid, however. That is an extraordinary right, nonexistent in other media. Should there also be a compulsory license for online video content? To software applications? That would mean that another platform could retransmit the content as long as it pays a regulated fee.[17] Under normal circumstances, the principles against compelled speech would protect the content owner or licensee from being forced to let others use and sell their programs, especially if they are competitors. But suppose, hypothetically, that Netflix has 50%

of the subscription video streaming market and insists that a Hollywood major studio had to license all of its output to Netflix alone and to no one else. Such exclusivity would be most likely held by American courts to be an exercise of monopoly power and to constitute a market foreclosure. The remedy would likely be to require nonexclusive licenses. This is not quite the same as full accessibility by compulsory license. It would still require a license negotiated by the platform with SMMP with the content provider, with the presumption that the terms of such license would be governed by FRAND principles.

There is even less of an access right *into* content. Control over a channel or a program is part of its editorial prerogative, and there are no rights to be included in, e.g., a news program or a game show.[18]

A more nuanced access arrangement would be to require a subscription platform with SMMP to offer its content also in an unbundled form, i.e., 'à la carte'. A user would be able to access a piece of content by buying a single-event ticket, without having to buy a subscription. The ticket price would be set by the platform. But it would be a 'most-favoured nation' price, i.e., nondiscriminatory. And while such a price might be set prohibitively high to discourage such use altogether, it would not make sense in commercial sense to prevent all one-time users altogether if they can be charged a fee that is net profitable to the platform. Publishers of popular magazines offer single-issue as well as subscription sales. Requiring such an unbundling would not be a restriction of a platform's speech rights—it already distributes the content to everyone who wants to subscribe—but rather only on the manner it bundles.

Such seller-required bundling (known as 'tying') has, in other cases, been cut down by courts or by laws, for example for Hollywood studios' packaging of films offered to movie theatres. To find a tying requires market power in one or several of the tied items. In the case of a subscription platform with market power, this would be true by definition. Thus, there should be no fundamental impediment to mandate an à-la-carte option, and there are good antitrust grounds for a governmental or private challenge of a take-it-or-leave-it subscription bundle.

The implication of an à-la-carte option would be that a user's delegated information intermediary could find a film through its search function across multiple platforms, and, if desired by the end user, purchase it on behalf of that user, at the price set by the platform, without requiring a full subscription.

In conclusion, the protections of intellectual property rights and of speech rights are fairly firm in denying mandated access rights to content created by others, especially with the intent to redistribute such content to third parties for profit. Where such rights exist, they are coupled with a mechanism of compulsory license payments. But where a platform holds significant media market power, it could not require exclusive licenses from content providers, and it might have to offer content also on an unbundled basis, at prices it sets, as long as these are not discriminatory.

Accessibility to Content Platforms

We now move to the accessibility onto content platforms themselves. When it comes to content platforms such as Netflix, Amazon, Hulu, or Dailymotion, what

should be the access rights of others? Normally, such a platform should not be required to carry content it finds commercially uninteresting, or objectionable in content terms, or created by rivals. However, if it holds SMMP, its judgments on politics and morality as well as its business interests would create a significant society-wide gatekeeping role over content. That role would create an endless set of disputes. It would also create an opening for governments to mandate the company to become a private censor by imposing responsibility and liability. To some, therefore, content platforms with market power are like public utilities, with a requirement to serve every provider of content on equal terms. A mechanism of compulsory licensing could conceivably be used for the access by rival content onto a platform with SMMP. This would resemble a common carrier obligation that exists for several infrastructure industries such as telecom or airlines. But to others, the platforms are more like publishers who curate content and shape it into branded packages, and whose judgment is protected under free speech rules.

Fortunately, there is a middle ground. First, platforms without SMMP need not carry any content they do not wish to carry. That is pretty obvious. Second and more importantly, platforms with SMMP would also not be required to carry content they do not wish to carry, but they would have to make it possible for their users to conveniently reach such outside content. To do so, the dominant platforms must provide the information intermediaries with API access to their content catalogue. This enables the information intermediaries to help end users in their selection function, by enabling them to conveniently find and access a particular item of content, on whatever platform it is stored.

Accessibility to Infrastructure Platforms

Normally, there would be no requirement for an infrastructure platform to provide transmission, storage, or processing service to independents or third-party rivals, or to collocate the independents' hardware servers in its data centres. But where the infrastructure platform holds SMMP, the same principles apply, to offer APIs to the Independent, such as accessibility to its transmission networks and data centres at reasonable points, and at FRAND pricing.

Accessibility to Last-Mile Transmission Service

The last-mile transmission segment—the communications link that connects the end user to a core network further upstream—is provided by the ISPs, which use several types of links, mostly phone lines, cable lines, and mobile wireless. These links are either operated by the ISP itself, or leased from a telecom infrastructure network company. 'Access' can mean two things:

- *Access to an ISP* by any content, content provider, or platform. This is the basic issue addressed in the net-neutrality debate. The principle of nondiscrimination would operate where SMMP exists, just as it would when it comes to other parts of the online video. And while this might restrict ISPs with such market power, it also gives them stronger bargaining power where they operate content platforms and

intermediate content distribution networks, which many of them do. (In the United States content platforms are operated by AT&T, Comcast, and Verizon, which are also the three largest ISPs.) The ISPs would not be restricted in network management functions, as long as these are applied to all similar types of data streams.

- *Access by an ISP to the last-mile infrastructure.* A 'virtual' (facilities-less) ISP may seek to operate on top of the infrastructure. To picture this, imagine, in an analogy, a transportation company operating trains, but using the tracks of another company, which may be a rival for transportation customers. What kind of access would the train company have to those tracks? For ISPs, this kind of access is often implemented in Europe and Japan by regulations that require unbundled access by telecom operators and set a pricing system. This arrangement gives consumers additional options in choosing ISPs. But it also reduces incentives for additional infrastructure. Access rights by a virtual ISP to the local infrastructure of a communications network company would exist solely where there exists SMMP. Where no such market power exists, or where the SMMP exists on both sides, access would be negotiated on a commercial basis.

Accessibility to Data

Data give competitive advantage in individualizing content, recommending content, and supporting effective advertising platforms. To be consistent in concept, where there is SMMP, consumer data should be accessible to competitors and independents.[19] However, the problem is the protection of privacy. Making that user data accessible to everybody willing to pay an access price will spread personal information widely. There is thus a clash between the goals of protecting user information and reducing media platform power. In that situation, privacy should take priority. In consequence, the data would not be accessible to rivals as a matter of right, and in fact should even be precluded from being passed on. It should be available to others, if at all, only in broad aggregates.

The protection of user data from wide access does not mean that market power should prevail in the exploitation of user data. There is another way to deal with that problem, based on the of the information curators described earlier. Users should be able to control subsequent use of personal information generated in a transaction with them. First, for all data operations above a certain size, they should be offered access to a menu of data-usage preferences. User permission requires full disclosure, and with an easy ability to stop such usage. Users could be compensated by the platform company for various permissions, or they can offer data to other companies, thus creating competition by data brokers. Where market power exists in an activity level where such data is generated, there would be further protections. In these transactions, the end users would be represented by their information intermediaries.

CONCLUSION

This chapter proposes and develops an 'open video system' to deal with digital dominance in the online video sector. The basic principles apply to other segments of digital platforms. Accessibility to a segment of an online video media company's service or facility should exist where that company holds significant media market power. Where such market power is found, the company must provide access to such a segment through an API or similar arrangement, priced under the principle of a most-favoured nation arrangement, and administered through industry self-regulation. Standing behind the self-regulatory mechanism is the governmental regulatory agency. Thus, it is a system of 'regulated self-regulation'.

Access would be given to end users and to information intermediaries who act on their behalf, and to rivals without SMMP. Access would not be to every element, only to those where significant media market power exists. Even where such market power exists, the system does not require a break-up of such platforms. And it does not tie a forbearance from regulation to a requirement for dominant platforms to act as the policemen for governments to restrict content in ways that governments have no legal right to do themselves.

There are no access rights, however, to a rival platform's content. Nor is there is an access right by rival content to be placed on a content platform. Instead, there is an API access for intermediaries to the content catalogue of platforms with SMMP, and they can provide links to rival online video providers. Similarly, there is no access right to personal data, but an intermediary may have control over data re-use when delegated by a user as its information intermediary.

Together, these approaches would assure a dynamic content industry and user involvement, while operating on infrastructure that operates with considerable openness to all users and content providers. In doing so, the proposed open video system reduces the need to fall back on detailed governmental control and oversight.

Next-generation video media must be open and diverse in technology, content, and participants. An access to segments where a platform holds digital dominance would

- create a more competitive and open system;
- protect free speech, intellectual property, and data privacy;
- reduce gatekeeping power over content and its origin;
- strengthen technology innovation;
- lower prices and increased consumer choice.

But it will leave or exacerbate other issues. It is easier, for example, to control for user privacy when the number of participants in the data collection field is small. Therefore, for remaining or additional issues such as privacy, consumer protection, security, etc., there could be governmentally set floors and ceilings. And different countries could set them differently.

The proposed access-based system does not solve all issues, and adds complexity, but it reduces the problem of digital dominance of the platforms and its global extension, which otherwise would lead to still more complex and restrictive behavioural regulations, structural breakups, and ownership segmentations and ceilings. We should give our attention and thought to establishing such an access-based system for video media, since it will be the foundation of media policy for a long time. And it may well be a model for other parts of the digital environment with similar dominance. The time to start working on this is here and now.

NOTES

1. This article is based on the recent volumes by the author: *The Content, Impact, and Regulation of Streaming Video: The Next Generation of Media Emerges* (Noam 2021a); and *The Technology, Business, and Economics of Streaming Video: The Next Generation of Media Emerges* (Noam 2021b).
2. Noam discusses them in detail in his recent volumes (Noam 2021a, 2021b).
3. In Germany, platform-oriented market power criteria were established in 2020, targeting the so-called super market rulers (Hartman and Holznagel, in this volume).
4. In the United Kingdom, the 2019 Report of the Digital Competition Expert Panel, appointed by the government, recommended more competition rather than breakups or restrictiveness. It proposed a new regulatory body to force firms to restructure themselves so as to enable users to control their data and switch among providers (Economist 2019).
5. An example was the company Respect Network, which created the world's first trusted personal cloud network. All members subscribed to the Respect Trust Framework as a model for personal data sharing.
6. The proposed open video system would restore such alternative program recommendation guides, thus resolving the European concerns with 'prominence' and searchability of domestically oriented or public service video.
7. The European Union enabled, in its Payment Services Directive 2 (PSD2), open banking (through the access to banks' APIs). The United Kingdom required the nine largest banks to give government-licensed startups access to the banks' APIs and user data down to the transaction level. However, this regulation applies only to banking.
8. Arguments have been made that requiring the granting of APIs and access to program listings amounts to 'compelled speech' and thus violates the First Amendment of the US Constitution (Fiest 2020).
9. Microsoft, in order to get EU regulatory approval of its purchase of LinkedIn, agreed to give other companies access to certain APIs related to Microsoft Office's integration with social media services.
10. APIs can be designed to give as much or as little functionality or access as the programmer determines. For example, they can be designed to only give access to a database of information. Similarly, the access via API could be for a simple yes-no click action from the outside, or to a more complex interaction with the software. That might include the ability to use an independent algorithm, for example to

affect user selection of content, both inside one platform and across multiple platforms (Wenger 2018).

11. Many companies in the chain of online video are vertically integrated across multiple stages. In that case, the test would be for the element where they hold market power, and not for those stages where they do not.
12. An HHI is the sum of the squares of the market shares of the firms in an industry.
13. In order to make the transition from non-SMMP to SMMP smooth, there could be a phasing-in of regulatory requirements corresponding to increasing market shares. The governmental regulatory body to make the determination whether SMMP exists would be the competition authority. That agency could delegate its authority to a more specialized agency, such as the media regulator.
14. A related version is for the price to be the same as the one the dominant provider with SMMP charges to itself. This is conceptually a nice way to think, but practically the internal pricing of operations (transfer pricing) can be set at just about any rate. To determine its reasonableness would then require again some form of rate utility-style analysis.
15. Game players' connectivity to each other would be an 'indirect' sideways access that passes through several other downstream stages.
16. Strictly speaking, the access is to the event, not to a video production by a rival.
17. Or, should there be a narrowly targeted compulsory license that gives such rights only to certain platforms, in the same way that cable channels could be retransmitted in the United States but only by recognized multichannel video programming distributors (MVPDs) such as cable and satellite platforms? In 2015, the FCC expanded the definition of MVPD to a category of online channel package providers. The major US television networks fought the online video platform providers on that status issue, because they did not want to be forced to give out a compulsory license under non-discriminatory conditions, which would have reduced their control and bargaining strength. In 2017, a federal Court of Appeals agreed, and held that an over-the-top video service does not classify as a 'cable system' as defined in the US Copyright Act, and thus did not get a compulsory license to retransmit the broadcasters' content. There is, symmetrically, a question of access rights for others, such as 'virtual MVPDs' operating online, to content that is offered by VOD platforms such as Netflix, Amazon, YouTube, and Hulu. MVPDs in the United States are, in particular, Sling TV, DirecTV Now, PlayStation Vue, Fubo, Philo, YouTube TV, PlutoTV, and Hulu Live.
18. In the United States, a 'Fairness Doctrine' rule, which existed for several decades, required access to opposing perspectives on issues of public importance. However, this requirement was abolished in 1987. That rule existed as a condition for receiving a scarce and valuable license for a TV channel. It never applied to the print media. Although newspaper journalists often bemoan the abolishment of the Fairness Doctrine rule for TV, they would not tolerate it for their own publications, even on a voluntary basis. *In re Complaint of Syracuse Peach Council against Television Station WTVH Syracuse, New York*, 2 FCC Rcd 5043 (1987).
19. In the United Kingdom, the Open Banking approach creates access rights by third parties to a consumer's information, with the latter's consent.

REFERENCES

Bridge, Gavin. 2020. 'Entertainment Companies Spend $121 Billion on Original Content in 2019', January 6. https://variety.com/2020/biz/news/2019-original-content -spend-121.

Coles, Cameron. 2018. 'Cloud Market in 2018 and Predictions for 2021'. *McAfee*, July 30. https://www.skyhighnetworks.com/cloud-security-blog/microsoft-azure-closes-iaas-adoption-gap-with-amazon-aws/.

Deloitte. 2014. 'Costing Methodology for Next Generation Networks'. https://www2.deloitte.com/content/dam/Deloitte/sg/Documents/technology-media-telecommunications/sea-tmt-costing-methodology-next-generation-networks.pdf.

The Economist. 2019. 'Competition, Not Break-Up, Is the Cure for Tech Giant's Dominance', March 13. https://www.economist.com/business/2019/03/13/competition-not-break-up-is-the-cure-for-tech-giants-dominance.

European Commission. 2007. 'Antitrust: Commission Ensures Compliance with 2004 Decision against Microsoft', October 22. http://europa.eu/rapid/press-release_IP-07-1567_en.htm?locale=en.

Fiest, Max. 2019. 'Why a Data Disclosure Law Is (Likely) Unconstitutional'. *Columbia Journal of Law and the Arts* 43: 518–69.

Lewis, Jeffrey I. D. 2014. 'What Is "FRAND" All About? The Licensing of Patents Essential to an Accepted Standard'. *Cardozo Law*, June 11. https://cardozo.yu.edu/what-"frand"-all-about-licensing-patents-essential-accepted-standard.

Noam, Eli. 2001. *Interconnecting the Network of Networks*. Cambridge, MA: MIT Press.

Noam, Eli. 2016. *Who Owns the World's Media?* New York: Oxford University Press.

Noam, Eli. 2021a. *The Content, Impact, and Regulation of Streaming Video: The Next Generation of Media Emerges*. Cheltenham, UK: Edward Elgar Publishing.Noam, Eli. 2021b. *The Technology, Business, and Economics of Streaming Video: The Next Generation of Media Emerges*. Cheltenham, UK: Edward Elgar Publishing.Ofcom. 2015. 'International Communications Market Report 2015', December 10. https://www.ofcom.org.uk/__data/assets/pdf_file/0020/31268/icmr_2015.pdf.

O'Halloran, Joseph. 2019. 'Five Services behind 89% of European Subscription Streaming Revs'. RapidTVnews, March 6. https://www.rapidtvnews.com/2019030655357/five-services-behind-89-of-european-subscription-streaming-revs.html#axzz5hPM2I6dE.

Rypka, Ryan. 2018. 'FRAND Royalties Will Impact the Cost of Your Next Smart Phone'. *Michigan Technology Law Review*.http://mttlr.org/2018/11/frand-royalties-will-impact-the-cost-of-your-next-smart-phone/.

Spangler, Todd. 2019. 'Hulu Live TV Tops Sling TV as No.1 Streaming Pay-TV Service, Analysts Estimate'. Variety, November 15. https://variety.com/2019/digital/news/hulu-live-tv-beats-sling-top-streaming-pay-tv-research-1203406138/.

Statista. 2015. 'Active Reach of Selected Online Video Websites as of August 2015, by Country', December 10. https://www.statista.com/statistics/284801/active-online-reach-of-selected-online-video-sites-by-country/.

Statista. 2018. 'Most Popular Online Video Properties US 2018'. https://lh6.googleusercontent.com/xAwi6vaYS77JLLqTdRyScgQxOD-kyP0_dVzJeH0_h-vVZEeevwWWvmwqVyPPWLMMf_uu8zClioj7CCFyimPkSFlS1P8563ST-PslwruzE7I8tG9Qji6p5TS7JplbioQiQZVI0kJ7.

Sun, Leo. 2019. '3 Reasons Sony Wants to Sell PlayStation Vue'. *The Motley Fool*, October 29.7373https://www.fool.com/investing/2019/10/29/3-reasons-sony-wants-to-sell-playstation-vue.aspx.

Tran, Kevin. 2017. 'Millennials Still Watch TV Despite Cord-Cutting Increases'. *B usiness Insider*, November 1. https://www.businessinsider.com/millennials-still-watch-tv-despite-cord-cutting-increases-2017-11?r=UK&IR=T.

Wardle, Nikki. 2018. 'Amazon Advertising vs. Google Ads'. *Tribute Media*, November 2. https://www.tributemedia.com/blog/new-kid-on-the-block-amazon-ads.

Wenger, Albert. 2018. 'World after Capital: Bots for All of Us (Informational Freedom)'. Continuations, December 10. https://continuations.com/post/180985743645/world-after-capital-bots-for-all-of-us.

Wu, Tim. 2003. 'Network Neutrality, Broadband Discrimination'. *Journal of Telecommunications and High Technology Law* 2: 141. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=388863.