THE HAMILTON PROJECT

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Enhancing Competition with Data and Identity Portability

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MISSION STATEMENT

The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth.

We believe that today's increasingly competitive global economy demands public policy ideas commensurate with the challenges of the 21st Century. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments.

Our strategy calls for combining public investment, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation's first Treasury Secretary, who laid the foundation for the modern American economy. Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that "prudent aids and encouragements on the part of government" are necessary to enhance and guide market forces. The guiding principles of the Project remain consistent with these views.

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This policy proposal is a proposal from the author(s). As emphasized in The Hamilton Project's original strategy paper, the Project was designed in part to provide a forum for leading thinkers across the nation to put forward innovative and potentially important economic policy ideas that share the Project's broad goals of promoting economic growth, broad-based participation in growth, and economic security. The author(s) are invited to express their own ideas in policy papers, whether or not the Project's staff or advisory council agrees with the specific proposals. This policy paper is offered in that spirit.

BROOKINGS

Abstract

Users contribute information to many digital platforms. Regulators have recognized that when such data cannot be easily moved between platforms, this may lock those users in to incumbent platforms and prevent innovative competitors from emerging. I argue that the same type of barriers exists with respect to networks of users. Users who move between platforms could lose the benefits of communications within their social network. I therefore propose to generalize data portability to a broader notion of identity portability, whereby messages (i.e., communications and content intended to be shared with other users) between verified connections can flow between platforms, thereby mitigating these broader switching costs and promoting competition.

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Chapter 1. Introduction

If there is one regularity in the modern economy, it has been the existence of monopolies in the communications and information industries. From Western Union to AT&T, Microsoft to Google and now to Facebook, each generation of primary communications infrastructure has led to a single firm dominating a market (Wu 2011). Today's markets are global rather than national, but the story remains the same. The interesting feature, however, is that new technologies often lead to new monopolies replacing existing ones.

Government intervention has played a role in this process, although precisely how large of a role is debatable. What has proven most effective in limiting monopoly power are interventions that have opened up existing networks and prevented firms from leveraging their position to dominate newer markets. For example, AT&T was famously barred from preventing other firms from making and selling handsets (F.C.C. 1968). Antitrust regulation similarly limited Microsoft from leveraging its various monopolies to gain footholds in new markets (United States v. Microsoft Corporation 2001). Those same antitrust policies have guided the actions of many of today's large technology platform companies. Even so, concerns remain about the power of today's largest digital firms.

These concerns focus on the extent to which network effects limit innovation, market competition, and consumer choice. Are there better ways of searching for things on the Internet than those that Google offers? Is there a better way of organizing news than that which Facebook provides? The companies involved, of course, claim with some justification that their high market shares are due to their popularity with consumers. They are popular and, at least in monetary terms, free for consumers to use. At the same time, there are structural issues that impede competition and that could prevent potentially better alternatives from competing on a level playing field with incumbent firms.

Because consumers typically do not pay a monetary price to use digital platforms, price regulation is not an appropriate regulatory instrument. Indeed, with the exception of ensuring that a dominant platform does not attempt to leverage its market power, there is no straightforward role for antitrust policy. That leaves open the question whether there are structural changes that policymakers might enact that could give us assurances that, should new challengers arise, competition will work as intended.

The focus of this proposal is on data and its role in creating barriers to entry in digital platform markets. The digital platforms have many key assets, but one of those is generated from the data they have collected and will collect. The most valuable data come from users themselves, who contribute data both directly and through their activity on the platform. Google uses individual search queries and user behavior to improve its search algorithm for everyone, as well as to personalize it for individuals. Facebook uses posts, likes, and user attention to do the same for its news feed. From one perspective, consumers provide the data essentially as free labor (Ibarra et al. 2018). However, consumers do receive benefits from the platforms to which they provide data, so it is not a one-sided deal. This is not a new arrangement, as it also underlies most media consumption (Gans 2012).

The problem for competition is that these data are, in many respects, exclusive to the platforms that capture them. For this reason, the European Union has proposed the introduction of a right to data portability that would allow users to take their own data as they move across platforms. This might mitigate some of the switching costs that may be a barrier to entry in these markets.

However, standard data portability addresses only the users' own data that they have contributed. A major part of platform switching costs derive from users' provision and consumption of data that others provide. Such data create network effects that raise the cost of switching platforms, unless groups of users can manage a coordinated shift.

To overcome this challenge, I suggest a new, broader right that comprehensively addresses the barriers to competition created by switching costs: identity portability. When an identity is ported, the consumer retains existing permissions to access data provided by others. This will make it possible for a user to leave a digital platform while still being able to communicate with their contacts who stay. The users will leave only the platform's algorithms and services behind, and not their contacts. Such policies are based on the experience of similar markets and technologies. For example, interconnection

was a core principle adopted in the deregulation of telecommunications (Armstrong 2002).

To mitigate the problem of switching costs for users who contribute to platforms, I propose the following in addition to current proposals for data portability:

1. Platforms will be required to allow users to port their identity to other platforms so that messages—i.e., communications and content intended to be shared with other users—can be sent between platforms in a nondiscriminatory manner.
2. Users will be alerted when their messages are being sent to other networks and will be able to opt out of having their messages sent, on a platform-by-platform basis.
3. Platforms will bear the costs of identity portability and will choose the technology by which portability is achieved.
4. Identity portability will begin with social networks before being extended to other markets.

Chapter 2. The Challenge

The generation, transmission, and use of data have become increasingly important to the functioning of markets and to the business models of many firms. This is most obviously the case for firms that either provide digital platforms or conduct their business through them. The data that are generated by the interaction of consumers and firms on these platforms can be quite valuable.

THE VALUE OF DATA TO PLATFORMS

Users who operate on a digital platform generate data. Some of this is basic data that users supply such as their names, addresses, and contact information. This is not typically the sort of data that matters in discussions of data portability because users can easily supply basic information to other businesses.

Instead, it is the data generated by a user's activity that is of interest. When users engage in activity on a digital platform, they are generating data. For instance, a user who wears a health-monitoring device could be providing a platform with data on their exercise activities, heart rate, and location. Unless there is a specific provision for it, the user can access that data only with the permission of the platform. Similar activity-based data arises from email/messaging services, transactions, search activity, browsing activity, and social media posting. Indeed, essentially all online activity is potentially being stored and used as data by platforms.

Firms use these data to make better-quality products in two ways. First, firms gather data from many users' activity and use it to train algorithms that lead to more insights regarding users' wants, as well as how users' activity changes as other elements of the platform change. For instance, a social media platform might use activity information to understand which advertisements are more likely to be effective. Second, firms take as an input consumers' own activity and use it to personalize products for them. For instance, a social media platform might track a consumer's likes and use this information to tailor the subsequent information presented to that person.

Data-driven value creation for a platform comes from the better products that are created as a result of those data. The personalization facilitated by input data allows the platform to supply products tailored to a particular user's tastes, adding value for that specific user. By contrast, a platform's training data are characterized by what economists call economies of scale: the data can be aggregated across users and are more valuable the more users are involved. In other words, users ultimately benefit from the platform's access to large swaths of data, which allow the platform to potentially deliver superior products.[1]

THE PROBLEM OF CLOSED PLATFORMS

Within a closed platform—defined as one that does not permit most data to flow to other platforms on an ongoing basis—consumer data are often unavailable to consumers and other businesses. This is a problem for two reasons. First, unavailable data can constitute a barrier to entry for potential competitors, thereby increasing the market power of incumbents. Second, data are what economists call non-rival goods, meaning that its use by one party does not prevent its use by another. It is socially efficient for non-rival goods to be made available to as many agents and for as many uses as possible.

Of course, data are not merely information. For example, sharing of personal data might entail costs if those data are disclosed widely. Accordingly, the law protects privacy in certain ways that limit the scope for data to be shared without a consumer's consent. However, the user has already disclosed personal data on a digital platform; at issue is whether a consumer has a right to retrieve and disclose it elsewhere.

In principle a digital platform could make data fully available to a user and relinquish exclusivity. Businesses may choose not to do so because of the costs associated with being non-exclusive—for instance, the technical costs of making data available in a secure manner or placing it in a portable form—but also because they would be relinquishing an advantage in competition with other firms.[2] These two types of cost have very different implications for policy: sufficient costs of the first type—enough to fully offset the social benefits of less-exclusive data—would imply that data should remain exclusive. But costs of the second type are actually transfers from one firm to another and would ordinarily not be a reason for policymakers to maintain exclusivity.[3]

The value of data to a platform implies that if data can be exclusively possessed by an incumbent firm, then the platform that has access may have a competitive advantage over those that do not. This type of advantage from exclusivity creates conditions under which a platform might want to monopolize data. A firm's monopolization of data could harm consumers if it confers an incumbency advantage—supported by barriers to entry—that reduces the incentives for competing platforms to enter a particular market.

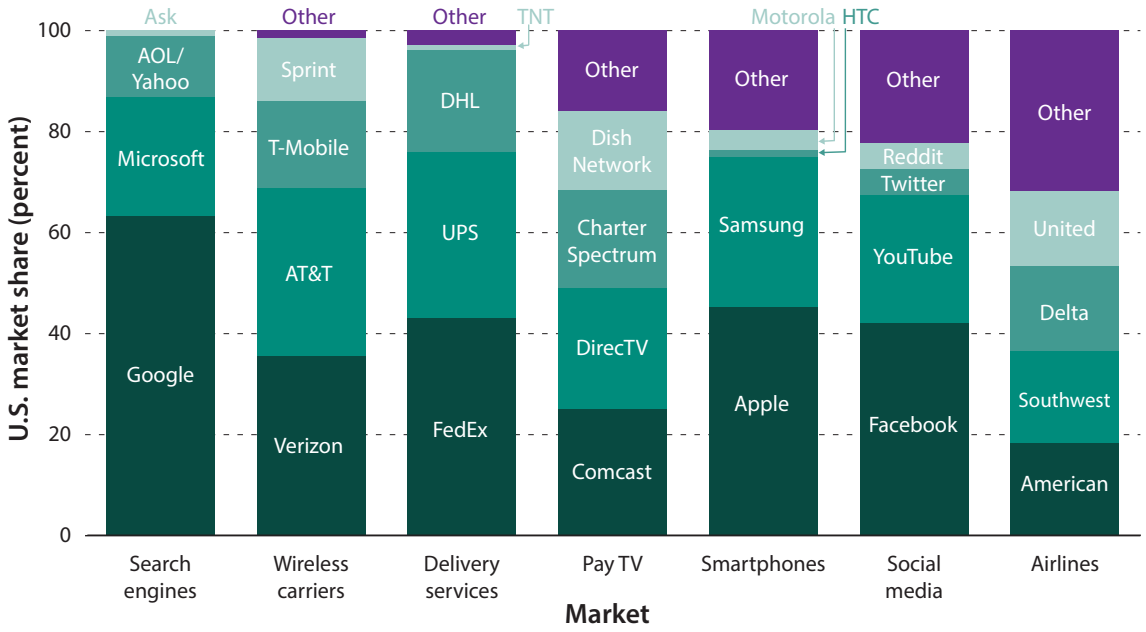
In antitrust economics a barrier to entry is a cost that new entrants need to incur that incumbents do not or have not had to incur (McAfee, Mialon, and Williams 2004). A new platform, if it can attract users, can build up activity that generates or replicates the data that an incumbent platform uses. However, this can take time and, moreover, will entail that early adopters of the new platform experience a less valuable product than would otherwise be the case. In other words, the user faces a switching cost that places any new platform at a disadvantage in attracting users, while at the same time protecting the existing platform.

In practice, it may or may not be the case that exclusive incumbent access to training data constitutes a barrier to entry. In web search new entrants have had difficulty matching the incumbent's product quality without access to similar quantities of data (He et al. 2017). However, the details are not always clear. How much training data are required to create a superior algorithm? The threshold might be small relative to the size of the market. In addition, how fresh does the data have to be in order to be most useful? It could be that better algorithms adjust to very recent user activity, implying that the disadvantage incurred by an entrant may be of short duration. In any case, as will be argued below, policies to increase data portability are not generally aimed at making these data available in large quantities, and consequently will not alleviate these barriers to entry if they exist.

It is worth noting that there is a special type of input data that poses additional competitive issues: user-generated data that are used to build products for other users—not in the aggregate but in a personal way. An example of this type of input data are messages or posts on social media networks. A post arises from the activity of a user who gives permission for that activity to be used to supply a product—for instance, a news feed or direct message—to other users. The cross-user nature of the data means that, should an individual user switch to another platform, they lose the input data (i.e., the messages) that others are sending to them. In this respect, a switching cost is incurred when a user moves to a new platform. However, the switching cost can be ameliorated if users switch as a group. This is where network effects (the increased quality of a product conferred by the actions of others) and switching costs intersect. Due to this dynamic, part of the competitive advantage of a platform arises from the inability of users to coordinate a switch to another platform.

FIGURE 1.

U.S. Market Share by Firm, Selected Markets (2016–18)



Source: comScore 2018a and 2018b (Search Engines and smartphones); FierceWireless 2018 (wireless carriers); DHL 2018 (delivery services); informitv 2018 (pay TV); MarketingCharts 2016 (social media); Bureau of Transportation Statistics 2018 (airlines). All accessed via Statista.com.

Note: Social media shows the share of all visits; smartphones and wireless carriers show the share of subscribers. Data for search engines, wireless carriers, and pay TV are for December 2017; data for delivery services are for 2017 for both North America and South America; data for smartphones and airlines are for January 2018; data for social media are for November 2016. The delivery firm TNT is a subsidiary of FedEx.

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The effect of all these factors is to potentially limit competition in markets. In general, economies of scale are associated with higher levels of concentration in markets. Switching costs have a two-fold impact on competition: not only do they constitute barriers to entry, but they also reduce competition between incumbents (Farrell and Klemperer 2007).

MEASURING CONCENTRATION

Indeed, economies of scale—often driven by network effects—are apparent in a number of markets. Figure 1 shows the market shares of leading firms in selected markets. The top two firms in search engines, wireless carriers, and social media commanded 87, 69, and 67 percent of their markets, respectively. (Market share in social media is defined in terms of total user visits.)

Understanding the challenge that data exclusivity poses requires an analysis of the degree of market power that online platforms actually have. For example, market concentration for social media networks can be understood in terms of the share of the population that uses a given platform. Table 1 presents data on selected social media businesses for the U.S. population. Facebook and YouTube had the largest share of U.S. users in 2018. However, when it came to the share of those users who interacted with the platform daily, Facebook, Snapchat, and Instagram had much higher intensity of use than others.

Table 1 also highlights the changes in these shares from 2016 to 2018. Those shares were stable over those two years, with the exception of newer entrants, who grew over that time. Interestingly, despite the entry of new social media platforms and their growth, the user bases of the more established networks did not change very much.

This phenomenon is something that does not normally arise in many markets where users choose between one firm and another. In social media, by contrast, users often multi-home, meaning they participate in several networks. As the table shows, between 80 and 90 percent of users of other social networks also use Facebook. The same research shows that this multi-homing is not necessarily reciprocal. Thus, Facebook is able to attract almost all social media users as part of a user's portfolio of social media engagement.

However, these shares provide an incomplete picture of Facebook's market power, in part because they do not capture the ability of users to substitute their attention between Facebook and other networks. Facebook could, in fact, be losing some of that consumer attention over time without it showing up in the statistics shown in table 1.

TABLE 1.

Social Media Use in the United States

Platform	Percent of U.S. using (2018)	Percent daily users (2018)	Percent who use Facebook (2018)	Percent of U.S. using (2016)	Percent daily users (2016)	Percent who use Facebook (2016)
Facebook	68	74	100	68	76	100
Pinterest	29	–	89	26	25	92
Instagram	35	60	91	28	51	95
Twitter	24	46	90	21	42	93
LinkedIn	25	–	90	25	18	89
Snapchat	27	63	89	–	–	–
YouTube	73	46	81	–	–	–
WhatsApp	22	–	85	–	–	–

Source: Greenwood, Perrin, and Duggan 2016; Smith and Anderson 2018.

Note: – indicates no data available. Sample restricted to respondents aged 18 and older. "Percent daily users" is defined as the percent of a platform's users who visit the site at least once a day.

This has implications for how we view market concentration and its relationship with market power. For instance, Facebook and other networks play roles in referring traffic to outside publishers and other media. If Facebook were to lose user attention, its role as a referrer would likely diminish as well. For instance, in 2017 Google accounted for 44 percent of referral traffic to publishers (up from 34 percent in 2016), while Facebook accounted for 26 percent (down from 40 percent in 2016) (Willens 2017). This suggests that the balance of social media market power might be more fluid than usage shares would indicate. More broadly, one could argue that social media is not the relevant market, but rather all these firms are competing for attention with other media, and as such, Netflix, broadcast TV, and any Internet sites are all competing for viewing time with these social media platforms.

IMPACT ON INNOVATION

When incumbents have advantages that entrants do not, this tends to lead to market power and all of its potentially detrimental consequences. The most familiar of these consequences is that lower entry leads to higher prices. In some data-related contexts, this is a relevant consideration—as with the use of transaction data to serve consumers with tailored banking products. This consideration also could arise with respect to premium (paid) services provided by platforms such as LinkedIn. The consequent switching costs generated by data exclusivity can reduce price competition between incumbents in addition to deterring market entry (Lee et al. 2006; Viard 2007).

A less straightforward issue arises in relation to large digital platforms. These companies have large scale and dominate their respective markets (search and social media), but individual consumers do not pay to use the companies' products. If data exclusivity is leading to market power concerns in those markets, those concerns are not manifesting themselves in the form of higher prices charged to consumers. Instead, market power concerns could manifest in the form of higher prices to the other side of the market—to advertisers who might have few options for reaching customers through online platforms (Athey, Calvano, and Gans 2016). Of course, advertisers do have other options for reaching customers outside of online platforms.

It is more likely that the primary impact of exclusivity-related barriers to competition is on innovation. Innovation can take a variety of forms but, in general, it is concerned with improving the quality of a platform's product for users. Some of these improvements take the form of increases in quality that are beneficial to all users, such as platform responsiveness or security. Another type of quality improvement takes the form of product innovations that appeal to some subset of consumers. Examples of such innovations include the platform's operation using different technologies (e.g., mobile vs. desktop) and the ways that algorithms serve up information to users, including what captures user attention as well as the user interface itself. This might also include variation in the balance between national news and local news, opinions and facts, videos and pictures, or information from family and information from friends. For instance, when Google launched its social network it emphasized the ability of users to more easily curate who saw particular posts. In this respect, product innovation can raise welfare not because it improves the experiences of all users, but because it improves quality for particular groups of users. Sometimes, however, innovations that initially appeal to niche groups can evolve to have broader appeal and to exert competitive pressure (Gans 2016).

How do switching costs impact innovation? In the presence of switching costs, entrants can attract market share only if they have something very significant to offer consumers that outweighs the difficulty of switching. In a market where consumer prices are already zero, overcoming switching costs can be very challenging. Indeed, a new entrant may face returns to innovation that are too low to justify the resources necessary for entry. This lack of innovative pressure from entrants means that incumbent firms are themselves less likely to invest in innovation (Segal and Whinston 2007).

That said, in advertising-driven markets that are the focus of this paper, the unit of competition is not the consumer per se but rather the consumer's attention. It is rare for an Internet-delivered service to capture the entirety of a consumer's attention over a substantial period of time, during which consumers can divide their attention between numerous platform activities. In order to compete, a new entrant must capture some attention from some consumers, thereby building up data that can be useful for the purposes of personalization.

Where this is, perhaps, more difficult is with regard to large-scale entry on platforms for which network effects are significant. I have already noted that when activity-generated data are shared between users, individual users may face high switching costs because they cannot coordinate with other users to switch at the same time and to the same alternative platform. In this case, entrants may be unable to capture any attention even if their platform would otherwise have greater value for a subset of users. It is innovation on platforms with network effects that economic theory predicts will be most dampened by the presence of switching costs associated with data exclusivity.

Chapter 3. The Proposal

The fundamental challenge with regard to data portability is how to balance the costs of portability with potential benefits. As I will argue, we can address some of this challenge by considering why and when the market may fail to provide the socially efficient outcome. The primary issue will be with respect to market power along with uncertainty regarding the costs of portability.

It is unlikely that regulators will be able to find a way of allocating the costs of data transfer to either consumers or competitors that will result in a socially efficient level of switching (see box 1). This is a standard regulatory issue that arises when regulated firms hold information that others do not have; in many instances, cost compensation is likely to be too high. On the other hand, if regulators require incumbents to bear data transfer costs and those costs are high, then consumer switching will occur even when such switching is not socially desirable.

To deal with this challenge, I propose that regulators adopt a rights-based approach to data portability that encompasses inter-network permissions and the portability of future messages. This proposal goes beyond the simple portability of a user's data, allowing consumers to reassign their identity and permissions to another platform so they can still receive and send messages (i.e., other users' data). I argue that only this complete approach can deal with the full range of switching costs—and, therefore, the full range of barriers to entry—that arise in the context of digital platforms.

As this approach may be unfamiliar, I will explain its rationale and how it relates to existing data portability proposals as well as similar proposals in other areas such as phone number portability. I believe that such portability rights represent an economically efficient way of setting policy for digital platforms to mitigate switching costs and promote competition and innovation.

A RIGHTS-BASED APPROACH

It is important to understand why a rights-based approach can be appropriate for mitigating switching costs and, thereby, enhancing market competition. Recall that those switching

BOX 1.

Who Pays for Data Transfer?

Suppose that a typical user receives value of $v_I(x)$ from an incumbent platform who has collected data of level x on that user. If the user switches to another platform without that data, the value they receive is $v_E(0)$. We suppose that $v_I(x) > v_E(0)$; that is, that the user will not switch if they cannot access the data. If the data are transferred with the user, the user receives $v_E(x)$. However, the data transfer itself costs, c. In this case, it is socially efficient for the consumer to switch platforms if $v_E(x) - c > v_I(x)$.

Let's suppose that if it attracts a user, any platform receives a in advertising revenue; moreover, the platform is not required to transfer any user's data. In this situation, an incumbent platform will pay c and lose a if the consumer switches. However, if the consumer is willing to pay a price $p > a$, the platform could find it in its interests to charge consumers that price and pay the costs of transferring their data. However, if $a > c$, there would be too little consumer switching relative to what would be socially desirable.

From a regulatory perspective, if the data transfer price were regulated so that $p = c$, then switching would occur if it were socially efficient. However, it may be difficult for the regulator to measure these costs or determine whether the incumbent platform has taken actions that have inflated these costs. These are traditional issues associated with price regulation and they apply in this environment.

On the other hand, if regulators were to decide that incumbents must bear data transfer costs, switching would occur even when it is socially undesirable. That is, consumers will switch if $v_E(x) > v_I(x)$ but it may be that $v_E(x) - c < v_I(x)$. That is, consumers would elect to switch even when data transfer costs exceeded the benefits of switching.

costs arise because user-generated data are typically locked within an incumbent platform. This sharply limits the value of the product other platforms can supply to consumers. As discussed in box 1, regulating who pays for any costs of porting data is unlikely to generate fully efficient switching.

By contrast, consider a policy that gives consumers a right to port their data and hence, a requirement that, if a consumer requests it, switching costs would be completely mitigated. On the face of it, this looks like a situation that would lead to the incumbent paying for that mitigation and hence the possibility of inefficient switching.

However, a rights-based approach gives consumers only the right to ask for their data. This means that a consumer can agree to relinquish that right. Instead they could negotiate some other compensation from the incumbent platform (Gans, King, and Woodbridge 2001). In this situation, it can be readily shown (see box 2) that if data transfer costs are too high (such that porting is inefficient), then switching will not occur.

BOX 2.

Negotiating for Data Transfer

A consumer will want to switch if $v_I(x) < v_E(x)$. However, it may be that $v_E(x) - c < v_E(0)$. In this case, it will be in the incumbent platform's interest to offer the consumer a payment between c and $v_E(x) - v_E(0)$ not to transfer their data. It may also be the case that $v_E(x) - c < v_I(x)$. In this case, it is in the incumbent platform's interest to offer the consumer a payment of between c and $v_E(x) - v_I(x)$ not to switch at all. In either case, if switching costs are so high as to make switching with data transfer a socially inefficient outcome, then this outcome will not arise under a rights-based approach.

STANDARD DATA PORTABILITY

To begin, let us consider standard data portability in the form proposed by the European Union. Article 20 of the General Data Protection Regulation (GDPR) provides users with a right to request their data from a platform as long as doing so does not adversely affect the rights of others (EU GDPR 2018).

This type of data portability renders user-generated data (including activity) non-exclusive to a platform, because a user can request those data and then transfer them for use by other platforms.[4] Many platforms already comply with this type of data portability:

- **Google Takeout:** Users can download all data from Google services including search history, Gmail, posted YouTube videos, Google Plus posts, and more.
- **Facebook Archive:** Users can download all of their information as well as activity data such as posts, photos, comments, likes, and check-ins.
- **Twitter Archive:** Users can download all of their posts (i.e., tweets) and likes.
- **LinkedIn:** Users can download all of their posts, invitations, and connections.

In other words, these services allow a user to download anything that they directly contributed to the platform.

Such data portability enhances competition by placing rivals on a more equal playing field regardless of how long a consumer or set of consumers might have been using services from incumbent firms. For instance, if a consumer wants to change from an existing email provider to a new entrant, data portability would allow them to take their archive of past emails and any email addresses stored in their contacts.

While many large providers with significant market shares have currently chosen to allow data portability, this option may become unavailable should it turn out that the providers face significant competitive pressure. Thus, even though this behavior indicates that the costs of providing data portability are relatively low, the possibility that the behavior might change is reason for the government to give users a right to port their data. In particular, this would mean that an explicit and separate transaction would be required for consumers to relinquish that right. The issue, as I will address next, is that the data that users have a right to under standard data portability are insufficient to deal with the most salient competitive concerns.

STANDARD DATA PORTABILITY IS INSUFFICIENT

Standard portability mitigates one type of switching cost associated with digital platforms—the cost associated with having to rebuild personal input data so as to maintain product quality at a new platform. While some major digital platforms have voluntarily implemented this type of portability, it would likely still prove useful for other platforms—including banks and credit card companies—if consumers had a right to data portability.

However, when switching costs are driven by network effects, standard data portability does nothing to address those concerns. For example, while a user can switch from one digital platform and take all of their posts and content to a new platform, they cannot port the posts that others have shared with them. In other words, they must remain on the incumbent platform to view those messages. This problem arises not just for past messages, but also for future messages. Users who switch platforms would not have the ability to receive new content from their previous network on the new platform.

In many cases, users also lose the ability to have their posts on the new platform to reach those who remain on the old platform. However, many digital platforms do provide a means of sending cross-network messages. For instance, if I post to Twitter, there exist means by which those posts show up on Facebook. However, such cross-network posting is far from ubiquitous.

In summary, standard data portability allows for a user's own input data to be transferred to another platform. However, users generate content that they intend to and do share with others on a network. Standard data portability does not address this type of data; consequently, switching costs driven by network effects remain, reinforcing the market power of incumbent digital platforms. I therefore propose a more general form of data portability—identity portability—that would allow shared content to persist across platforms.

THE SOLUTION: IDENTITY PORTABILITY

The solution I propose is that individual users have a right to their identity and its verification if they change digital platforms. What this would mean is that if users on a particular platform give permission to send messages to Person A, then, should Person A change digital platforms, she can opt to have all messages forwarded to her on the new network. Because users were already sending messages to a person with a verified identity, that identity should persist along with the permissions that establish from whom to receive messages and to whom to send them.

To understand what this would look like to users, consider the example of social digital platforms. At the core of social digital platforms is the sending of messages between users. We do not usually refer to these as messages because they have generic names such as posts, photos, videos, news, likes, and comments. But each one of these things is content that is passed from one individual to another individual or group of individuals. In Facebook, the usual default network is "friends." For the purposes of this proposal, a friend is a person to whom a user has given permission to send and receive messages from. In some cases, a user is able to send a message to everyone on Facebook, i.e., to make a post. This is typically what happens with content from specific organizations (e.g., the New York Times or the comedy website Funny or Die). In other cases, groups form that involve their own cluster of permissions. Social digital platforms manage the verification of a user's identity on behalf of all of those who have given permission to send and receive messages.

Under this proposal, should a user change to a new platform, the new platform will receive all of the messages sent by the user's friends and other correspondents on the old platform and it will transmit to the old platform any messages sent by the user from the new platform, assuming that the parties concerned do not revoke their consents. For the user, the new platform will be used to read and compose messages. For the user's friends, nothing will change. It will be as if their friend continues to reside on the old platform. In each case, a user's platform will control how the information is presented to the user.

If any users make changes to their permissions, then the old platform will send these changes to the new platform, and vice versa. For instance, users on the old platform can opt to withdraw permission for their posts to be sent to the user and the user can opt to withdraw permissions to users on the old platform. The reverse would be true for new permissions. Ideally, this process would be seamless—an extension of verification and permissions that platforms already provide to their users.

With identity portability, the network effects insulating digital platforms from competitive pressure will be mitigated. In effect, the switching cost associated with potentially losing connections will be fully mitigated. This means that individuals could switch between platforms based on their tastes and preferences as well as the innovations devised by different platforms. There would be no need for a coordinated move among users to recreate network effects on a new platform. Note that this change does not disadvantage incumbent platforms per se but places all platforms on an equal footing. Some incumbent platforms could benefit in terms of attracting users as much as new entrants might.

The prize for attracting a user to a platform will be the ability to earn money from those users. For instance, users who do not like to see advertisements might be attracted to a platform that charges them fees instead of sending them advertisements. The point is that the ability to earn money from a user's attention will become more contestable as a result of identity portability.

POLICY EXPERIENCE WITH ANALOGOUS MARKETS

The idea of allowing messages to flow between distinctly owned and operated platforms is not new. This interconnection was established for postal and telephone networks in multiple countries. More importantly, when local telephone carriers were deregulated around the world in the 1980s and 1990s, regulators required that those networks be interconnected so as to accept and make calls from one network to another. Such interconnection practices have been adopted worldwide as a natural way of establishing more-competitive markets in telecommunications, including for Internet traffic (Noam 2002).

Identity portability shares with interconnection the idea that messages can be intentionally sent to users across different platforms. Where the two concepts differ is that with identity portability comes a set of permissions for messages to be sent and received. Moreover, the identity itself persists as

individuals change platforms. With interconnection such persistence was not (initially) a requirement.

This requirement came in the form of number portability. When a user switched between any landline or mobile networks, number portability allowed the user's phone number to follow them. From the perspective of callers to that individual, the change in network was not apparent. Identity portability aims for the same type of platform veil as was achieved by the combination of number portability and interconnection.

Like the identity portability proposed here, number portability became a right to consumers who own their own number and can take it between networks (Gans, King, and Woodbridge 2001). In many jurisdictions, consumers do not even have to inform their carrier directly of the change and can change their number as they sign up for a new network. The changeover typically takes less than an hour.

Interconnection, by contrast, involved different carriers charging each other for traffic—usually the termination of calls on each other's networks. The additional prices were typically regulated so as to prevent them becoming an alternative means of extending or maintaining market power by incumbent networks. Setting regulatory limits on these prices was somewhat complicated by universal service obligations that involved some degree of cross-subsidization of one customer type by another (Noam 2002). Thus, interconnection pricing was a stopgap measure to prevent cream skimming by new entrants of the incumbent's more-valuable customers. No such difficulties exist in relation to the digital platforms that are the subject of this proposal.

Perhaps the clearest example of mandated interconnection was the interoperability between AOL's Instant Messenger application and other messenger applications that the Federal Communications Commission required in its approval of the AOL–Time Warner merger in 2002. The regulators were concerned that the market had tipped or would soon tip in AOL's favor, giving it network effects that would make entry impossible. Those assessments were controversial, but AOL was required to make changes so that its messaging application was able to accept messages from and send messages to other providers' products (Faulhaber 2002).

I am not aware of any comprehensive studies that have analyzed the impact of this regulation on competition and innovation in the messaging market. However, AOL reported that its market share had fallen from about 65 percent before the merger to 59 percent in 2003 and by 2006 its market share hovered just above 50 percent (AOL Time Warner Inc. 2003; Desjardins 2016). These estimates suggest that tipping had not occurred. In 2018 AOL announced that it was exiting this market that is now completely dominated by new entrants including Apple, Facebook, Snapchat, and Google, among several others. Those apps have not been made interoperable with one another.

Finally, it is worth emphasizing that interconnection has been adopted in many contexts without the need for regulation. For instance, there is interoperability across email platforms with some forwarding mechanisms that allow the equivalent of number portability. And, of course, when a user switches Internet providers, they can still access all of their existing web-based services without any need for a change in identity, except in some cases when a user moves between countries.

TECHNICAL CONSIDERATIONS RELATED TO IDENTITY PORTABILITY

Currently, social media platforms verify identity and have an internal means of ensuring the management of permissions. For identity portability, these techniques would have to be extended beyond a particular platform. How that would be best achieved is an open question.

One possibility is that platforms continue to manage identity verification and permissions, but with messages forwarded to other platforms. However, one important concern is that incumbent platforms might not manage the receipt of messages in a neutral manner. They might, for instance, delay messages from people outside the network or give them reduced priority in a list of messages. This lack of neutrality has happened in other digital platforms such as online travel bookings. This, however, would be verifiable ex post and can potentially be made subject to regulatory sanction.

Another possibility is that an independent entity could be vested with responsibility for the management of identity verification and permissions. There might be competitive options for providing this management, as occurs currently with credit reporting. Alternatively, decentralized verification might be possible using blockchain technologies (Catalini and Gans 2017).[5] Yet another possibility is for a public organization to manage verification and permissions, as is already done in Estonia (Heller 2017) and in India with Aadhaar.[6] Ultimately, this management may evolve into a set of open protocols like those that powered the commercial Internet, such as TCP/IP, POP, IMAP, SMTP, and HTML (Greenstein 2015).[7]

Given the uncertainty over what might be the best technical solution, I propose making identity portability a right and allowing market participants to determine the ideal approach to implementation. When market participants are forced to bear the costs of identity portability, participants are more likely to devise the lowest-cost technical solution.

Some companies might initially rely on their own solutions for identity portability. Facebook currently offers an identity management service called Facebook Connect that allows

others to use Facebook to effectively manage identity. Facebook also has the ability to track identity across services, including browsers that users are logged in to. If a user switches services, Facebook Connect can provide a means of porting their identity to that service. That said, a user might prefer that a platform discontinue collecting data on them after they have exited the platform. As messages are sent between platforms, this data collection could occur. Here again, Facebook's services offer a potential solution; in this case, the company's privacy management services could help navigate these issues. In addition, Apple, Google, Twitter, and others (including third parties like OAuth) offer identity management services that could also perform these functions.[8]

SCOPE OF APPLICATION

This proposal was designed with social networks in mind. However, there is no reason why identity portability cannot extend beyond that domain. For example, data portability laws already allow transfer of transaction data and health monitoring data (Tennison 2017).

One example of applications beyond social networks are ratings and reviews used by platforms to form reputations. Amazon and eBay allow buyers to rate sellers, while Uber and Lyft allow drivers and riders alike to rate each other. Yelp and Google aggregate users' reviews and ratings of businesses. Amazon, Apple, and Netflix use viewing habits to suggest content to users. Standard data portability laws may permit the export of such data, but it is perhaps the verification of identity associated with those data that is more valuable for encouraging competition among those services.

In principle, there is no reason why identity portability could not encompass ratings and reviews (Birch 2014). The particular difficulty in this area is that privacy concerns might be even more important. Some ratings and reviews are anonymous, and identity portability could be seen as a challenge to that anonymity.

While the notion of identity portability has a clear meaning, it is likely that for some types of platforms it will be more difficult to implement than for others. One important dimension of difficulty is how established the platform is. In particular, regulators would not want identity portability to harm the ability of new entrants to develop new products that involve user contributions. To this end, Himel and Seamans (2017) propose a deferred data-sharing requirement. Their suggestion pertains to data portability but it could apply equally to identity portability.

Such deferral is based, in part, on how intellectual property protection works. A temporary boost to market power can give firms an incentive to invest, while the distortionary effects of that boost are limited by the fact that the boost is, in fact, only temporary. Of course, this raises important issues regarding how long that deferral should last.

Another dimension on which identity portability might vary in its application is in how established a given market is. More-established markets, like social networks, are already widely used and their products are well-defined. It would therefore make sense to implement identity portability first for social networks before extending it to other areas where users contribute data, such as reputation and health.

Finally, there are potentially complex issues related to privacy. One of the important functions that platforms provide consumers are data security and other measures that affect the privacy of their data. While some legal protections exist related to privacy and security, platforms often ask users to permit their data to be used widely: for example, to optimize advertising performance and, in some cases, to provide information that is valuable in other contexts. It is often up to users how they confront those trade-offs.

Indeed, this proposal aims to ensure that users have the maximum possible choice in that regard. If users value privacy and security and would prefer their data not to be used for other purposes, it should be possible for new entrants to offer services that reflect that preference, even if it is a minority view among consumers. A hallmark of effective market operation is that it supports a diversity of available products.

That said, when identities are ported messages will flow between platforms that have different policies or practices regarding the use of information. For example, a user might be concerned about security and will have chosen a platform based on that concern. They might be concerned that messages they send to their network could be transmitted to platforms that are not as secure. Their right to control where their data flows means they should have the option to prevent messages flowing to particular platforms.

One way to give users that control would be to require them to opt in to having their messages sent beyond their own platform. However, such a requirement could well undermine the objective of the proposal by keeping the costs of switching high. Instead, messages should flow freely to verified connections unless a user actively chooses to block those messages to particular platforms. In other words, users should be given information regarding where messages are being transmitted, but messages should flow to their entire network by default unless users opt out. This model is consistent with how many digital platforms structure message sending. For instance, Facebook defaults to allowing friends to see messages, but individuals can block messages from going to certain people.

Chapter 4. Questions and Concerns

1. Could incumbent firms manipulate message communications?

Incumbent firms have some discretion as to how messages are presented when they are sent or received, and the speed at which communications flow. For instance, incumbents could delay sending messages to other networks or display messages received from other networks in a manner that is of lower quality and/or lower priority. Put simply, incumbents might find ways to keep switching costs higher than they would otherwise be.

While these scenarios are possible, there are mitigating factors. First, an incumbent platform engaging in these activities would harm both users who have switched and users who remain—that is, the incumbent platform's own users. This could accelerate those users' incentives to switch to a rival network to obtain a higher quality of service.

Second, as with telecommunications interconnection, quality of service can be monitored by regulatory authorities. If the identity portability requirement were legally robust in a way that enjoined discriminatory treatment of messages, then the threat of sanctions might be sufficient to counter potential manipulation of message communications.

2. Could this encourage cream skimming?

A potential concern that arises with identity portability is that new entrants might embark on a strategy designed to do very little but attract the highest-value users from incumbent platforms. For instance, they might opt for a reskinned version of an existing platform but with fewer advertisements.

While this is a possibility, identity portability will be unlikely to reduce switching costs to zero; new entrants will have to provide something of value to attract users. If they can provide an equivalent platform and be financially viable with less advertising revenue, then this is arguably a desired market outcome.

More critically, the back and forth of messages is supported by investments in infrastructure that permit platforms to transmit messages in a real-time manner even when there are millions or even billions of users. A new entrant would not be able to simply replicate that complete experience via reskinning.

That said, it is possible that new entrants might target valuable customer groups. The best customers might migrate to the new network, and this could have a disproportionate effect on the revenue of existing platforms. Once again, however, one would have to ask why the existing platforms are unable to serve specific customer groups—especially their most profitable customers—more effectively. In contrast to the situations where regulated telecommunications firms had universal service obligations that constrained them, no such constraints apply to digital platforms today.

3. Will identity portability compete with privacy protections?

At the moment, privacy protection is the responsibility of a digital platform. There is no reason why that cannot remain the case with identity portability—it is just that when a user ports their identity, the responsibility for privacy protections also moves. However, it could be that some technical solutions are independent of platform. In this case, it is more difficult to assess responsibility. That said, these issues do not appear to be insurmountable. For instance, governments have been able to regulate caller permissions (through "Do Not Call" lists) as well as the flow of certain types of Internet content.

4. How is this different from social graph portability?

Luigi Zingales and Guy Rolnik proposed social graph portability (2017). They wrote, "It is sufficient to reassign to each customer the ownership of all the digital connections that she creates—what is known as a 'social graph.' If we owned our own social graph, we could sign into a Facebook competitor—call it MyBook—and, through that network, instantly reroute all our Facebook friends' messages to MyBook, as we reroute a phone call." They did not expand on the details of this proposal but their idea was that a consumer's data and contacts would be given to the new platform. By contrast, I propose that a person's verified identity will be ported while permissions to communicate with that identity will persist and can be modified. However, I believe that the concepts are likely to be economically (and probably practically) equivalent.

5. Who pays for the cost of interconnection?

Interconnection will involve costs. Some of these costs will be the set-up costs associated with any technical solution to identity portability. In the case of interconnection and number

portability, these costs were borne by the carriers. However, there could be other costs that are ongoing and related to the volume of messages that are sent between platforms.

With regard to such costs, there is a solid argument for peering: this is a situation where each platform is responsible for its own costs because the costs end up balancing out in relation to their shares of users. To see this, suppose that there is one platform with 25 percent of a market (Platform A) and another with 75 percent (Platform B). Assuming neutral communication patterns, for Platform B there is a one in four chance that a particular message will be sent to the other network, while for Platform A it is a three in four chance. This means that if each network were to charge the other y cents for each message that is delivered, Platform A will charge Platform B $0.25 \times 0.75 \times y$ cents per message while Platform B will charge Platform A $0.75 \times 0.25 \times y$ cents per message. In other words, regardless of their sizes, each network will charge the other exactly the same amount that they expect to receive. Thus, if they choose not to charge each other at all, neither would lose or gain anything.

What this means is that there is a good case for leaving the costs of interconnection and identity portability with individual platforms. There are no additional distortions—such as universal service obligations—that undermined such pricing regimes as they did in traditional telecommunications.

6. How many identities can a person have?

At present a single person can have many identities, including digital ones. Virtually every platform a user signs up for assigns a new identity. Sometimes users link identities to one another by, for example, storing credit card information on Shopify or Amazon. Sometimes a third party does the linking, as with credit reporting agencies.

Perhaps no one has thought this a more unsatisfactory state of affairs than Facebook founder and CEO Mark Zuckerberg. As was reported in a 2009 interview, "'You have one identity,' he emphasized three times in a single interview with David Kirkpatrick in his book, The Facebook Effect. 'The days of you having a different image for your work friends or co-workers and for the other people you know are probably coming to an end pretty quickly.' He adds: 'Having two identities for yourself is an example of a lack of integrity'" (Kirkpatrick 2010, 199).

In this regard, Zuckerberg was referring more to how people present themselves to the world; in effect, though, any form of communication raises similar issues. That said, even Facebook has struggled to provide a single identity to its users. Although people must use their real names on Facebook, the same is not true for Facebook properties like Instagram, possibly reflecting a lack of buy-in to Zuckerberg's vision. Indeed, in recent years Facebook has acknowledged that there has been a reduction in intimate sharing on Facebook itself—one explanation of which is that people want to manage their identity in more than a single form.

There are, of course, two distinct concepts of identity. The first is the technical fact that there is only one of you; the second is your persona, which you can present in multiple versions. At present people use Facebook and other platforms to project different personas rather than a single identity.

When we talk of identity portability, therefore, we are talking of persona porting only. That said, one can imagine that some solutions to identity portability—including having identity as a base layer of a broader network—could allow personas to be managed while keeping identity as a single point. This is certainly the philosophy of the digital-first management by the Estonian government that assigns a single digital identity at birth that individuals then manage throughout the rest of their lives, including what information is revealed to others. Indeed, because governments have long embraced the single identity philosophy with single social security numbers, tax IDs, passport numbers, and so forth, the management of these processes might end up public, with governments managing forms of identity portability.

We are already seeing examples of this. In 2017 the city of Guangzhou, China, announced a plan to allow users to link their national identity to their WeChat account—a very popular social media and messaging application owned by Tencent (Wildau 2017). Such identification is required for all manner of transactions including hotel reservations and train ticket reservations, in addition to social welfare programs. By linking it to WeChat, application providers can build applications that allow for verification of those transactions on the platform. Identities will be verified using facial recognition algorithms. This is not a new development as China already requires real person identification for mobile phone numbers and WeChat requires a mobile phone number to set up an account. Facebook might not be far behind (Travis 2012).

Chapter 5. Conclusion

The size, influence, and market power of digital platforms are the subjects of intense debate. Governments around the world are facing pressure to consider various regulations that could limit such market power. Unfortunately, some suggestions being proffered are based on insufficient economic analysis and evidence.

This proposal grounds issues of platform market power in terms that are familiar to competition policy experts. The ultimate concern is whether consumers have the widest possible range of choices when interacting with digital platforms. These choices are limited by switching costs and the network effects they produce. Thus, it is necessary to consider policies that mitigate those switching costs and, in the process, enable consumer choice. The rights-based approach of this paper will achieve better outcomes than a more heavy-handed policy response.

While data portability is a well-established proposal and is being implemented both as policy and at the discretion of social networks, it does not address the larger switching costs associated with network effects. By contrast, identity portability targets those switching costs. Given the uncertainties of implementation, this proposal constitutes a first step toward a digital platform market characterized by diminished barriers to entry, enhanced competition, and better outcomes for consumers.

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Endnotes

1. When it comes to new developments in artificial intelligence, there is a clear distinction in the roles for data that trains algorithms versus those that power those algorithms in use (see Agrawal, Gans, and Goldfarb 2018).
2. There are several potential technical costs that could arise with data transfer. First, there are potential bandwidth costs involved in the transfer itself. Second, there are costs associated with verifying that the data are being transferred to the correct source. Third, there could be costs associated with extracting the data in a transferable form from the platform's servers. Fourth, to the extent that transfer takes place between platforms, there are the costs of setting up and configuring application programming interfaces for that purpose. Finally, there are likely to be costs associated with security.
3. Matters could be more complicated if platforms have invested in ways of gathering and using personal data in the hope of future returns that rely on exclusivity. In that case, policy that reduces exclusivity would generate costs associated with reduced investment.
4. For an excellent overview of what standard data portability does and does not do, see Tennison (2017).
5. In 2018 Microsoft announced that it would be pursuing a blockchain prototype to give individuals a digital identity on its Azure cloud web service (P. Johnson 2018).
6. The latter has been in place since 2009 and uses biometric measures for identification. It has, however, not been universally successful yet, partly due to inconsistencies and errors that might cause inefficient exclusion from digital services.
7. There are also many start-ups trying to establish new protocols today, as described in S. Johnson (2018).
8. One issue that will need to be resolved is the standards and formats for what is ported. While many messages have common elements—text, images, videos—there are others that are more difficult to classify. With any such efforts, there is always a risk of lock-in to an inefficient standard. That said, for open protocols in the messaging space, such as Unicode, evolution has been possible.

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THE HAMILTON PROJECT

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Highlights

In this paper, Joshua Gans of the University of Toronto describes the economic context in which online platforms and users interact, focusing on the ways that this context limits the potential for strong competition. The network effects that characterize the success of popular platforms can also constitute a barrier to entry for potential competitors. Gans draws from analogous experiences with other communications markets as well as the research literature to propose identity portability, a new approach to regulating online platforms.

The Proposals

Require platforms to allow users to port their identity from one platform to another. Users should be able to receive and send messages (e.g., posts, photos, likes, comments, etc.) between platforms in a nondiscriminatory manner on an ongoing basis.

Allow users to opt out of cross-platform message sharing. Users will receive alerts when their messages are sent to other networks and they will be able to opt out of having their messages sent, on a platform-by-platform basis.

Enable platforms to choose the technology to implement identity portability. Platforms will bear the costs of implementing identity portability and will choose the technology that best suits the needs of both platforms and users.

Benefits

Identity portability would enhance innovation by mitigating many of the network effects that insulate dominant online platforms from competition. With user identity portability, new firms enter the market on equal footing. Individuals would be able to switch between platforms based on their tastes and preferences as well as the innovations devised by different platforms. This would help to better match users with the online platform services that are best suited to their needs.

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