Governing Big Tech's Pursuit of the "Next Billion Users"

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Abstract

Ten years ago, only 6 percent of the population in low-income and lower-middle-income countries had access to the internet. Today, nearly one in every three people there does. The rapid expansion of internet access across the globe is a welcome development, but it raises new policy challenges. And while there is broad agreement in the development community on the importance of getting digital policy "right," too little attention has been paid to how policymakers in the developing world can best engage with the companies who dominate the digital landscape. As governments reassess their relationship with these companies, an increasing number are enacting policies that raise barriers to the cross-border flow of data and put the largely global and open nature of the internet at risk. In this paper, we review how internet use has evolved in the developing world over the last decade, with a focus on initiatives by big tech companies to reach the "Next Billion Users." We then examine how concerns about data privacy, disinformation, and market concentration have manifested in lower-income countries and how policymakers have begun to respond. We close by considering ways the development community can support policymakers seeking to maximize the benefits of an open internet while minimizing its risks.

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Introduction

When Senator Mark Warner warned Facebook COO Sheryl Sandberg, Twitter CEO Jack Dorsey, and an empty chair representing Google that "the era of the Wild West in social media is coming to an end" at a hearing in September 2018, it reflected the extent to which concerns about the role of big tech companies have shifted the debate in the United States from whether these companies should be regulated to what form that regulation should take.[1]

Given the global reach of the largest US digital platforms, how Congress ultimately decides to regulate the industry will have profound implications outside of the United States. The choices made on Capitol Hill will not only affect how these companies operate abroad, but also shape the set of regulatory options available to policymakers in other countries, particularly in lower income ones that lack the economic heft necessary to influence large tech firms on their own.

Ahead of the hearing, Warner's office drafted a set of policy proposals for regulating social media and technology firms focused on three areas of concern: the challenge of protecting consumers in the digital age, the capacity of social media platforms to promote disinformation, and the risk that market concentration will stifle innovation.[2] While the Warner paper is exploratory in nature, it provides a good summary of the options Congress is most likely to consider moving forward.

In this paper, we use these three areas of concern as a frame for exploring what the rapid growth of Big Tech in the developing world means for its policymakers grappling with how to maximize the economic and social benefits internet platforms provide while minimizing risks.

In doing so, we recognize the hazard of lumping together countries with starkly different socioeconomic characteristics into a single "developing world" bucket. Certainly the online experience of a person in Zimbabwe, where a 1 GB monthly prepaid mobile broadband plan (the equivalent of a four hour chat on Skype) costs 33 percent of average income per capita, differs greatly from one in Egypt, where the same amount of data costs a hundred times less.[3] Likewise, policymakers in Malaysia, where 80 percent of the country has internet access and users spend an average of 8.5 hours online daily, face a different set of policy challenges than those in Eritrea, where only 1 percent of the population uses the internet.[4]

However, we believe that considering the developing world as a distinct unit is useful for several reasons. First, with notable exceptions like China and India, these countries have limited, if any, leverage over large internet companies, given their small size and low income per capita.[5] As way of comparison, consider the European Union's General Data Protection Regulation (GDPR), which introduced sweeping changes to data privacy that the largest

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[1] US Senate Select Committee on Intelligence Hearing: *Foreign Influence on Social Media*, September 5, 2018.

[2] Warner, Mark. *Potential Policy Proposals for Regulation of Social Media and Technology Firms*. July 30, 2018.

[3] Alliance for Affordable Internet. *Mobile Broadband Data Costs*. September 2018.
Confused.com. *Data Usage Calculator*.

[4] World Bank. *Individuals Using the Internet (% of Population)*.
Hootsuite, We Are Social. *Digital in 2018: World's Internet Users Pass the 4 Billion Mark*. January 30, 2018.

[5] Dean, Marissa, Jonathan Donner, Chris Locke. *Financial Inclusion in the Platform Era*. September 11, 2018.

internet companies have chosen to comply with, often at great cost, because they are unwilling to forego the opportunity of doing business in the world's second largest economy. In general, developing countries do not provide the same commercial impetus.

Second, because so many people in the developing world are relatively new to the internet and often have fewer tools at their disposal to cross-check information, they may be more easily exploited by efforts to misuse their personal data and more susceptible to propaganda campaigns conducted online.

Finally, although developing countries are equally if not more vulnerable to risks raised by digital platforms, little work has been done to consider how policymakers there should approach these challenges.[6] And while there is broad agreement in the development community on the importance of getting digital policy "right," too little attention has been paid to how policymakers can best engage with the companies who dominate the digital landscape. It is therefore not surprising that, as the Pathways for Prosperity Commission has emphasized, "few developing countries have a clear approach to [the] foundational question of digital governance and even fewer, if any, have a clear approach to regulating digital design and user protection."[7]

The desire by a growing number of governments to reassess how they engage with large tech companies combined with a lack of rigorous evidence about policy efficacy has resulted in a mishmash of approaches—including outright bans, social media taxes, and data localization requirements—that endanger the (mostly) open nature of the internet. Many of these governments are also exploring ways to use the internet to support surveillance and stifle dissent, following the model provided by China.[8]

Concerns about balkanization of the internet can be traced back to the mid-2000s (for example, see Tim Wu's 2004 blog), but the trend appears to have accelerated in recent years.[9] The best way to confront this tendency is to address the challenges that a more free and open internet presents.

There is no one-size-fits-all solution to the concerns raised by society's growing reliance on internet services, and governments will approach them differently based on the importance they place on values like privacy, transparency, and freedom. But the development community can help policymakers make more informed decisions in several ways, including by building evidence on the costs and benefits of different regulatory responses, creating an intellectual framework around the treatment and valuation of personal data, and laying the groundwork for global coordination efforts in areas where cross-country spillovers are most pronounced.

We aim to inform these efforts first by reviewing how internet use has evolved in the developing world over the last decade, with a focus on initiatives taken by Facebook and Google to reach the "Next Billion Users." In this section, we also emphasize the ways in

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[6] One exception is new work by the organization Future State, which is developing a "Data Empowerment Toolkit" aimed at helping policymakers develop data-sharing frameworks that prioritize the needs of users. A draft of the toolkit is available here.

[7] Pathways for Prosperity Commission. *Digital Lives: Creating Meaningful Connections for the Next 3 Billion*. 2018.

[8] Freedom House. *Freedom of the Net 2018*. October 2018.

[9] Wu, Tim, *The Balkanization of the Internet*, August 17, 2004.

which internet users in the developing world have a qualitatively different experience online than their rich world counterparts. We then examine how concerns about data privacy, disinformation, and market concentration have manifested in the developing world and how policymakers have begun to respond. We close by considering ways the development community can support policymakers seeking to maximize the benefits of an open internet while minimizing its risks.

1. Pursuing the Next Billion Users

Ten years ago, only 22 percent (1.5 billion people) of the world's population could connect to the internet and, of those, only 13 percent in lived in low- and lower-middle-income countries.[10] Today, with almost half of the world online, nearly one in every three people in the developing world has internet access.[11]

Underlying this good news, however, is the more sobering reality that the ability to get online continues to vary across income lines: while over 75 percent of people in the United States and Europe have internet access, only 20 percent in sub-Saharan Africa and 26 percent in South Asia do.[12] The digital divide mirrors inequalities within countries as well, with the poor, elderly, and rurally located less likely to be connected. Women also have less access than men, especially in low-income countries.[13]

The danger is that these already disadvantaged groups will fall even further behind those who participate in digital society.[14] And because many of those who lack internet access live in poor and remote areas, they will be more difficult to reach and less profitable for companies to connect.[15]

Internet use has spread in the developing world in parallel with three broader trends that are changing the digital landscape: the centralization of gatekeeping powers by a few large companies, the assertion of national regulation, and the rapid growth in use the of mobile devices.

As online access has expanded globally, the nature of the internet has changed—moving further away from the decentralized ideal that Tim Berners-Lee had in mind when he created the World Wide Web in 1989, to one in which our online experience is increasingly shaped

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[10] World Bank. *Individuals Using the Internet (% of Population), High Income*.
World Bank. *Individuals Using the Internet (% of Population), World*.
[11] Pathways for Prosperity Commission. *Digital Lives: Creating Meaningful Connections for the Next 3 Billion*. 2018. Throughout the paper, we use the term "developing country" to refer to countries that the World Bank defines as low- and lower-middle-income economies. See footnote 28 for more detail on the World Bank's income classification scheme.
[12] World Bank. *Individual Using the Internet (% of Population), Sub-Saharan Africa*.
World Bank. *Individual Using the Internet (% of Population), US-EU*.
World Bank. *Individual Using the Internet (% of Population), South Asia*.
[13] International Telecommunications Union. *ITU Facts and Figures 2017*. July 2017.
[14] Pathways for Prosperity Commission. *Digital Lives: Creating Meaningful Connections for the Next 3 Billion*. 2018.
[15] International Telecommunications Union. *Time Series of ICT Data For the World*.

by a handful of large internet companies. For instance, in the United States, more than 50 cents of every dollar spent on digital advertising goes to Google or Facebook, and more than one of every two dollars spent through online retail goes to Amazon.[16] The same pattern of concentration holds in developing countries: for example, in a recent survey in Kenya, more than half of all mobile traffic was directed through applications owned by Facebook and Google.[17]

At the same time, national governments are increasingly asserting their right to regulate how internet companies operate in their jurisdictions. While national regulations aimed at reining in internet companies are not new, they have become more common and more restrictive.[18] Moreover, a growing number of countries are emulating China's authoritarian model of the internet, "where technologies of surveillance and identification help ensure social cohesion and security by combatting crime, terrorism, extremism, and deviance."[19]

The other sweeping change is the increased use of mobile devices to connect to the internet. This is particularly true in low-income countries where the rapid uptake of mobile phones has enabled millions of people to connect to the internet for the first time and where the poorest households are more likely to have access to mobile phones than to toilets or clean water.[20]

More than any other companies, Facebook and Google have successfully integrated their products and services across web and mobile applications, contributing to their dominant role in the global market. Today, Google operates domains in roughly 200 countries and territories, and offers services in over 100 languages. Estimates of the company's market share in online search vary between 82 and 92 percent, and its Android operating system powers more than two billion devices worldwide.[21]

Facebook's social network also spans the globe, with 2.3 billion monthly active users worldwide and content available in roughly 100 languages.[22] Over 70 percent of Facebook users live in Africa and Asia, and India recently surpassed the United States as the country with the most people on the platform (250 million).[23] WhatsApp, which Facebook acquired

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[16] Lunden, Ingrid. *Amazon's Share of the US E-Commerce Market is Now 49%, or 5% of All Retail Spend.* Tech Crunch. 2018.

Ingram, Matthew. *How Google and Facebook Have Taken Over the Digital Ad Industry*. Fortune. January 4, 2017.

[17] Pathways for Prosperity Commission. *Digital Lives: Creating Meaningful Connections for the Next 3 Billion*. 2018.

[18] An early example occurred in 2000 when French courts fined Yahoo! for allowing French citizens to purchase Nazi memorabilia on its online auctions. Lessig, Lawrence. *Code: And Other Laws of Cyberspace Version 2.0*. Basic Books. December 2006.

[19] O'Hara, Kieron and Wendy Hall. *Four Internets: The Geopolitics of Digital Governance*. December 2018.

[20] World Bank. *World Development Report 2016: Digital Dividends*. 2016.

[21] See: https://www.netmarketshare.com and http://gs.statcounter.com/search-engine-market-share Given that roughly 20 percent of the world's internet users live in China, where Google is banned, these estimates should be treated with some skepticism.

Popper, Ben. *Google Announces Over 2 Billion Monthly Active Devices on Android.* May 17. 2017.

[22] Facebook Inc. *Facebook Reports 3Q 2018 Results. October 30, 2018.*

[23] Hootsuite, We Are Social. *Digital in 2018: World's Internet Users Pass the 4 Billion Mark*. January 30, 2018.

in 2014, is the most popular messaging app in the world, boasting more than 1.5 billion monthly active users.[24]

Because both companies derive most of their revenue from advertising (ads provide 98 percent of Facebook's revenue and 85 percent of Google's), their profitability depends on increasing the number of their users or the revenue they generate from each.[25] Today, tech companies earn much more from their users in the developed world. For example, Facebook's average revenue is $26.76 per user in North America, compared to only $1.86 in its "Rest of World" category, which captures users in Africa, the Middle East, and Latin America.[26] As a result, Facebook earns roughly 43 percent of its revenue from the United States even though only 10 percent of its customers live there (see figure 1).[27] Google similarly earns about 46 percent of its revenue in the United States.[28]

[24] Meola, Andrew. *Whatsapp is the Most Popular Chat App in More Than Half the World*. Business Insider. May 26. 2016.

[25] Facebook Inc. *Facebook Annual Report 2017*. *2017*.
Alphabet Inc. *Alphabet Announces Third Quarter 2018 Results*. October 25, 2018.

[26] Facebook Inc. *Facebook Q4 2017 Results*. 2018.

[27] Facebook Inc. *Facebook Q2 2018 Results*. 2018. For a more detailed examination of Facebook's revenue per user in the developing world, see Caribou Digital's *Paying Attention to the Poor: Digital Advertising in Emerging Markets*. 2017.

[28] Alphabet Inc. Alphabet Inc. *Third Quarter 2018 Report*. 2018.

Figure 1. Growth in Facebook's users and revenues, by region

Growth in Facebook's Monthly Active Users (MAU) by Region

Growth In Facebook's Average Revenue Per User (ARPU) by Region
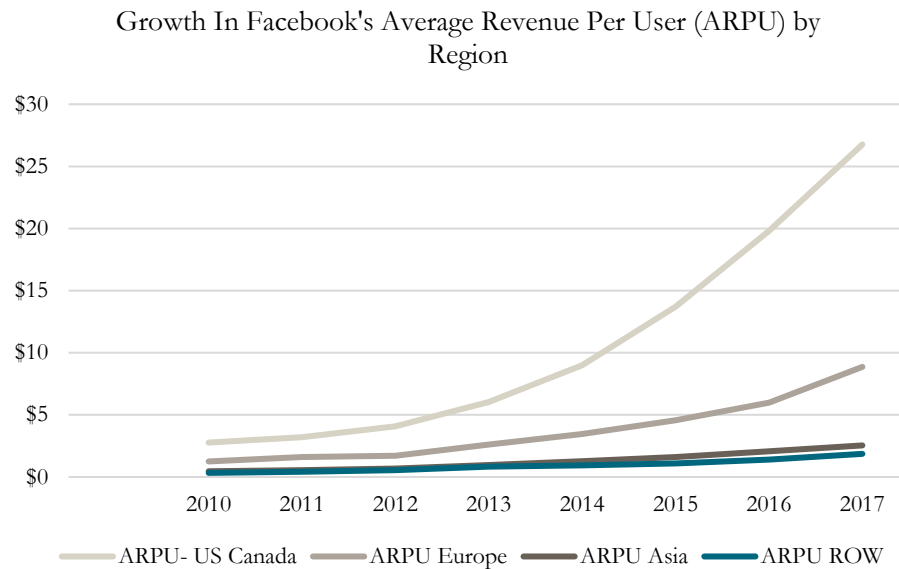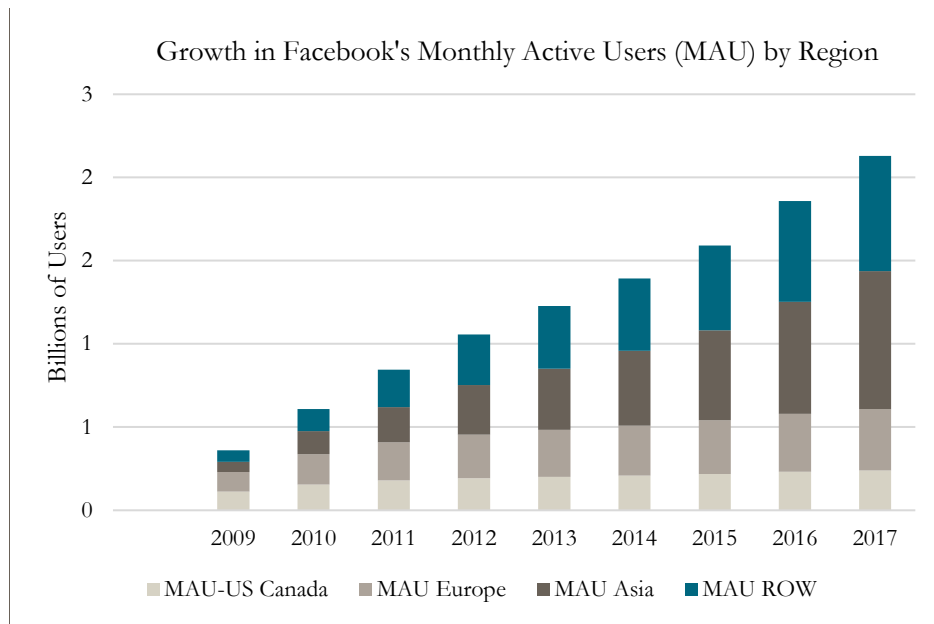
Source: Facebook Annual Reports.

The industry's challenge is that the number of potential customers in the rich world not already online is rapidly dwindling. Tech companies have responded to this dynamic by shifting their focus to finding the "Next Billion Users" in lower-income markets.

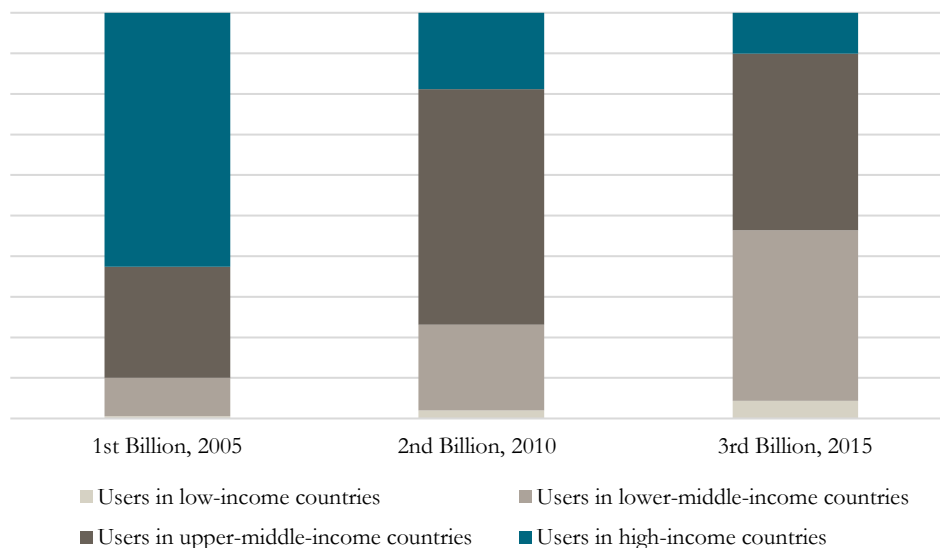The "Next Billion Users" is a club with shifting membership. Figure 2 captures how the composition of each cohort has changed over time.[29] In 2005, when the internet crossed the one billion user threshold, most internet users (62 percent) lived in high-income countries, while less than 10 percent lived in the developing world. The share of new users from developing countries rose to nearly a quarter in the second billion cohort (which took shape between 2006 and 2010) and to 47 percent as the third billion came online from 2010 to 2015. Today, more than 65 percent of the roughly four billion people in the world without internet access lives in countries with a per capita GDP of less than $3,895 a year (i.e., countries classified by the World Bank as lower-middle income and low-income) (see figure 3).[30]

Figure 2. Internet Users by the Billion

1st Billion, 2005	2nd Billion, 2010	3rd Billion, 2015

■ Users in low-income countries   ■ Users in lower-middle-income countries
■ Users in upper-middle-income countries   ■ Users in high-income countries

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[29] We use the World Bank's income classification scheme, which groups countries into the following four income categories, based on annual gross national income (GNI) per capita, measured in US dollars: high-income (over $12,000), upper-middle-income ($3,896 to 12,055), lower-middle-income ($996 to $3,895), and low-income (less than $995). We use the term "developing country" to denote countries that fall into either the low-income or lower-middle-income categories.

[30] Pathways for Prosperity Commission. *Digital Lives: Creating Meaningful Connections for the Next 3 Billion*. 2018.

Figure 3. The Next Billions: Who Remains Offline?

- Users in low-income countries
- Users in lower-middle-income countries
- Users in upper-middle-income countries
- Users in high-income countries
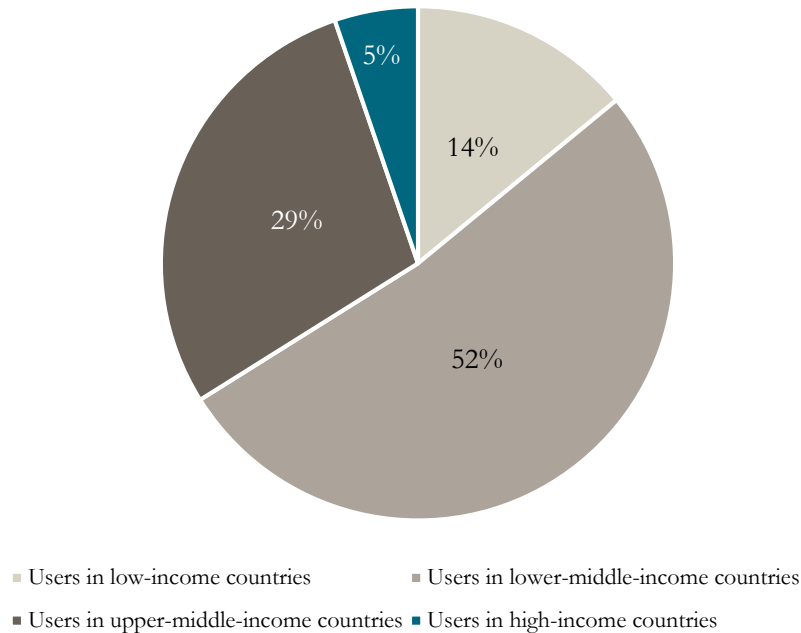
Source: ITU (2018) ICT Indicators Database, Pathways for Prosperity Commission Analysis

The rapid growth of internet access in the developing world that began earlier this decade coincided with efforts by the world's largest tech firms to target lower-income markets by expanding the reach of networks and tailoring products to a more difficult operating environment and a different set of user needs. These differences include:

- *The predominance of mobile*. As noted above, most users in the developing world access the internet through a mobile phone rather than a computer. In Kenya, for example, 99 percent of all internet access is through mobile devices.[31] As Google Vice President Caesar Sengupta notes, "most of the next billion users have never used a PC and may never use one. They don't think of the internet as something you access with a mouse and a keyboard."[32] Smartphones are also becoming increasingly common. GSMA (Groupe Spéciale Mobile Association), the trade association of mobile network operators, projects that smartphone adoption in developing countries will exceed 60 percent by 2020.

- *Poor connectivity*. Many internet users in the developing world still depend on 2G technology for internet access, even though it was not designed to handle data-intensive applications. By 2020, nearly 70 percent of Southern Asia and over 40

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[31] Vota, Wayan. *Mobile Data Subscriptions Account for 99 Percent of all Internet Access in Kenya*. ICT Works. July 14, 2011.

[32] Sengupta, Caesar. *The Next Billion Users Are the Future of the Internet*. Google. February 14, 2018.

percent of Africa will still depend on 2G networks.[33] As a result, connection speeds in the developing world are often dramatically slower than those in high-income countries. For example, it takes more than 25 times longer to download 1 megabyte (the equivalent of one hi-res digital photo download) in Mali or Mauritania as it does in North America.[34]

- *High cost of data.* Internet users in the developing world face a high cost of data relative to their income. The World Bank estimates that paying for a phone and data plan can cost customers in 15 African countries more than 20 percent of their monthly income. By comparison, Norwegians only need to spend 0.27 percent of their monthly income.[35] In addition, while most consumers in high-income countries enter into long-term contracts that provide virtually unlimited data, most people in the developing world purchase credit in advance and draw down their balance as they use data.[36]

Together these factors shape how people in the developing world use the internet. Because they pay such a high price to access data and do so "by the bit," they are keenly aware of the monetary cost associated with every click they make.[37] This leads to what Jonathan Donner of Caribou Digital has called a "metered mindset" that serves as a "looming, persistent deterrent to surfing, web browsing, and effective use of the internet."[38]

Facebook and Google Carry the Torch

Through their efforts to expand network access and create services that work well in low bandwidth environments, Facebook and Google have helped to expand internet use in the developing world. We examine the broad contours of each companies' strategies for reaching the next billion users below.

Facebook

Since 2010, Facebook has worked with telecom providers in many low-income countries to offer a bundle of applications (including a streamlined version of Facebook) designed to run on phones with low processing power, limited storage space, and in low bandwidth environments at no cost to consumers.

Mark Zuckerberg explained the rationale behind this approach in a 2013 essay that launched Facebook's *Internet.org* initiative.[39] In the essay, he argued that, although the cost of building and maintaining networks made it prohibitively expensive to provide full internet access to everyone in the world, a focused effort on reducing the cost of delivering data and building

[33] Aeris. *The Global State of 2G, 3G, 4G, and 5G*. 2015.

[34] Ashton, Mark. *World Broadband Speed Interactive Map*. Cable. July 10, 2018.
Pinola, Melanie. *How Much Data Do I Need?*. Lifewire. November 12, 2018.

[35] Khokhar, Tariq. *Where Are The Cheapest and Most Expensive Countries to Own a Mobile Phone?*. World Bank. January 13, 2016.

[36] Caribou Digital. *Digital Access in Africa*. 2016.

[37] Donner, Jonathan. *After Access: Inclusion, Development, and More Mobile Internet*. MIT Press. November 20, 2015.

[38] ibid

[39] Zuckerberg, Mark. *Is Connectivity a Human Right?*. Facebook. August 20, 2013.

more efficient apps would make it economically feasible to provide a set of basic online services for free to those who could not afford them. Mobile providers have been willing to zero-rate these services (i.e., provide them without charging customers for the data used) because it helps them attract new customers who may eventually choose to pay for full access to the internet.

A key challenge for the program—and a major source of the controversy surrounding it— has been defining what services should be considered "basic" and therefore zero-rated. At the project's outset, the applications offered were limited to those agreed on by Facebook and their telecom partners. However, critics argued that the project violated net neutrality principles by giving zero-rated applications an unfair advantage over competitors and restricted users to operating in a "walled garden" that limited their ability to engage with the broader internet.[40] In response to these criticisms—and as part of the company's failed campaign to bring the program to India—Facebook modified its approach in 2015 when it announced *Free Basics*, which provided an open platform that anyone can— submit a website to as long as it meets technical and participation guidelines. Notably, Facebook does not post ads on *Free Basics*.

Unfortunately, these controversies have overshadowed Facebook's work to develop technologies that make it easier to access the internet by bringing down the cost of delivering data and building more efficient applications.[41] The company has released many of these technologies as open source software so developers can improve upon them.

Today, *Free Basics* operates in 65 developing countries, including 30 in Africa and 11 in Asia, and Facebook claims that the project has helped almost 100 million people gain access to the internet who may not have done so otherwise. [42] But skepticism about the zero-rating approach remains: in a 2016 study conducted by the Alliance for Affordable Internet in eight developing countries, 82 percent of those surveyed said that they would prefer a free plan with a data limit but no restrictions on the websites and apps they could use to a zero-rated service.

While *Free Basics* provides services to people already in reach of telecom services, Facebook is also working on several speculative projects to expand access through projects under its Connectivity banner. These include high-altitude platform stations and satellites that "beam connectivity throughout the atmosphere" and the ARIES project, which seeks to extend mobile coverage to rural areas.[43] Facebook's decision in June 2018 to end its much-

[40] Advox. *Can Facebook Connect the Next Billion*. July 27, 2017.

Ahmad, Sohaib, David Choffnes, Zaid Ahmed Farooq, Krishna P. Gummadi, Amreesh Phokeer, Ihsan Ayyub Qazi, Rijurekha Sen. *Inside the Walled Garden: Deconstructing Facebook's Free Basics Program*. October 28, 2017.

Biddle, Ellery Roberts. *The More We Connect, the Better It Gets-For Facebook*. New York Times. September 26, 2017.

[41] Ericsson, Facebook, Qualcomm. *A Focus on Efficiency*. September 16, 2013.

[42] Internet.org. *Where We've Launched*.

Facebook, Inc. *First Quarter 2018 Results Conference Call*. April 25, 2018.

[43] Lardinois, Frederic. *Facebook's Terragraph and ARIES Antennas Bring Internet to Underserved Areas*. Tech Crunch. 2015.

Facebook Connectivity.

publicized Aquila high-altitude drone project highlights the difficulty of developing new models for delivering connectivity.

Google

While Google also experimented with zero-rating in its short-lived *Free Zone* project, its main avenue for attracting new users in the developing world has been the rapid expansion of the Android operating system, which it has supported by encouraging developers to design applications that meet the needs of users in emerging markets.

This includes programs like *Building for Billions,* through which Google advises developers on how to design products that reduce battery consumption and conserve data use.[44] Recent examples of this approach are Android Go, a stripped-down version of the operating system designed to work on entry level smartphones; Files Go, an Android app that allows users to transfer files offline; and YouTube Go, which makes it easier for users to playback pre-downloaded videos when offline.[45]

Google's most recent project to expand access is *Google Station,* which provides free high-speed public Wi-Fi in select train stations in several developing countries. The project, which Google launched in 2016, now operates in more than 400 train stations in India, where more than eight million people use the service every month, and in a smaller number of stations in Indonesia, Mexico, Nigeria, and Thailand.[46]

With the combination of Google Station and its suite of Go apps, Google has created a digital ecosystem that allows people unable to access the internet on their own to use data-intensive applications and download large files that they can later use and share offline. Unlike a zero-rating approach, this model provides users with an un-walled internet experience with the key limitation that they must have access to a participating station.

Google has also launched several ambitious initiatives aimed at bringing connectivity to those living in more rural and remote areas, including the highly publicized Project Loon, which uses high-altitude balloons to beam internet to users over a large area, and CSquared, which has laid hundreds of kilometers of fiber cable in sub-Saharan Africa.[47]

The Path Forward

Reflecting their commercial imperative, Facebook and Google have focused their efforts in the developing world on populous countries with growing middle classes, such as India, Nigeria, Indonesia, and Brazil (for the moment, China remains off-limits). But their map of engagement continues to grow: for example, both Facebook and Google are working with

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[44] Google. *Tools for Developers.*

[45] Android. *Introducing Android 9 Pie.*
Google. *The Making of YouTube Go.*
Google Play. Files by Google.

[46] Google India Blog. *400 Wi-Fi Enabled Train Station in India and Counting.* June 7, 2018.

[47] Loon.
CSquared.

partners to lay hundreds of miles of fiber optic cable in Uganda, Africa's 10th most populous country.[48]

These investments are paying off. Facebook's highest growth markets are now India, Indonesia, and Vietnam, and Google reports that use of its Maps application grew by over 50 percent in Indonesia, India, and Nigeria over the last year.[49] These commercial gains are driving rapid growth in internet access across the developing world. In 2017, the number of internet users in Africa grew by 20 percent.

Despite these gains, Facebook and Google have not yet realized significant revenue growth in lower-income countries. As Caribou Digital emphasizes in its report *Paying Attention to the Poor*, "digital advertising revenue is a function of economic activity, and for many developing countries, there simply isn't enough consumer spending to attract substantial advertising revenues."[50] To date, the internet giants have been willing to subsidize the services they provide in the developing world, in part because they value the data they collect there. Ultimately, however, that data must be put to commercial use to sustain their business models.[51]

The Challenge of China

As US tech companies advance their efforts to gain market share in the developing world, they face growing competition from Chinese tech firms Alibaba, Baidu, and Tencent, which have grown to massive scale under the protection of China's Great Firewall and in a home market with more internet users than any other country. All three companies are now expanding operations in Africa and South Asia. [52]

Unlike their Silicon Valley counterparts, the Chinese tech giants have evolved under the watchful eye of an authoritarian government that uses its internet policy to support censorship and surveillance. The system now serves as a model for governments that want to create a similarly repressive internet regime, and Chinese officials have not been shy about sharing their expertise.[53] According to Freedom House's "Freedom on the Net 2018" report: "This year, Beijing took steps to propagate its model abroad by conducting large-scale trainings of foreign officials [in at least 36 countries], providing technology to authoritarian governments, and demanding that international companies abide by its content regulations even when operating outside of China."[54]

China's authoritarian model presents a critical threat to the mostly open nature of the global internet, and its growing popularity looms over any discussion of the future of internet policy in the developing world. We believe that the best way to limit the model's appeal is to address head-on the challenges that a more free and open internet presents.

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48 Wexler, Alexandra. *Facebook Pushes Into Africa*. Wall Street Journal. October 8, 2018.

49 Facebook Inc. *First Quarter 2018 Results Conference Call*. April 25, 2018.

50 Caribou Digital. *Paying Attention to the Poor: Digital Advertising in Emerging Markets*. 2017.

51 This point was made to us by Chris Locke, the Founder of Caribou Digital.

52 The Economist Magazine. *Chinese and US Tech Giants Go at it in Emerging Markets*. July 7, 2018.

53 Sacks, Samm. *Beijing Wants to Rewrite the Rules of the Internet*. June 18, 2018.

54 Freedom House. *Freedom of the Net 2018*. October 2018.

2. The Challenges Raised by Big Tech

The rapid expansion of global internet access is a welcome development. But the provision of that access (which has some characteristics of a public good) by private actors inevitably raises questions for policymakers to consider, as does the gatekeeping power these companies have been entrusted with.

Because internet users in the developing world often have a more limited internet experience than their rich world counterparts, the ways in which challenges related to data privacy, disinformation, and market concentration manifest there may differ. In addition, the more limited ability of policymakers in lower-income countries to exert influence over the internet giants suggests that policy responses may also diverge.

In the next three sections, we examine some of the concerns that the developing world's growing reliance on large tech companies has raised and what policymakers are doing in response.

Data Privacy

Online commerce has become increasingly reliant on the use of personal data, as technological advances have made it cheaper than ever to collect, store, and process digital information. At the same time, we conduct an ever-increasing share of our activities on digital devices, leaving behind a trail of data that internet companies collect and analyze to develop a fuller picture of who we are, what we believe, and what we desire.

Internet companies create detailed profiles of their users' behavior and preferences by tracking their online activity, location settings, and social graphs. They then use this information to personalize the services they offer us and appeal to advertisers eager to target their intended audiences. For example, Facebook allows advertisers to target potential customers using over a hundred profile characteristics, from a person's basic demographic information to the size of her home and whether she has an anniversary coming up in the next 30 days.[55]

Although predictions informed by user tracking can benefit consumers in a variety of ways (e.g., producing relevant music or book recommendations, helping find the quickest route to a destination, detecting credit card fraud), these advantages come at a cost, as the increased use of personal data inevitably results in less privacy. Recent events like the Facebook/Cambridge Analytica scandal—in which data from 87 million Facebook users was improperly shared with a political consulting firm tied to the Trump campaign—highlight how the tacit bargain that consumers strike with digital platforms when they trade privacy for convenience can at times harm both them and society at large.[56]

There is now a substantial literature on how the "track and target" commercial model, sometimes referred to as "surveillance capitalism," leaves consumers vulnerable to

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[55] Closers Café. *Facebook's Exhaustive List of Ad Targeting Options in One Legendary Infographic*. September 18, 2017.

[56] Chang, Alvin. *The Facebook and Cambridge Analytica Scandal, Explained with a Simple Diagram*. Vox. May 2, 2018.

Wu, Tim. *The Tyranny of Convenience*. New York Times. February 16, 2018.

exploitation, as well as a growing catalogue of incidents in which internet companies or their affiliates have misused personal data in ways that harm the users who provide it.[57]

Governments have responded to these concerns in different ways. The European Union has taken the toughest approach on data privacy, partly in reaction to the legacy of government surveillance under the Nazi regime and during the Cold War. The GDPR, which went into effect in May 2018, sets stringent conditions on how companies use, transfer, and process data related to EU citizens. Among other provisions, the GDPR allows users to have their data erased (after meeting certain requirements) and gives them the right to request a portable copy of their data.[58]

In contrast, the United States has taken an uneven and mostly hands-off approach to protecting online privacy that relies on "a patchwork of sector-specific laws and regulations."[59] US policymaker attitudes about regulating the sector appear to be shifting, however, based on a steady uptick in congressional hearings on the topic, the recent passage of California's data privacy bill, and signaling from the Democratic Party that it intends to give consumer protection on the internet a higher priority.[60] These steps are in line with recent polls that suggest most Americans are concerned about how internet companies use their personal data.[61]

There is even greater variation in the developing world, where a few countries have taken a tough stance on data privacy while many others have given it scant consideration. As recently as 2017, more than 70 countries lacked data privacy laws, including 35 countries in Asia and 33 in Africa.[62]

South Asia provides a good example of the diversity of approaches. Some countries in the region, like India, Indonesia, and Vietnam, have drafted data protection laws that require firms to store data in servers physically located in their jurisdictions. Others, like Singapore and Malaysia, take a strict approach to the use of personal data but do not require it to be

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[57] Zuboff, Shoshana. *The Age of Surveillance Capitalism and the Prospects of an Information Civilization.* Jan 2018. PublicAffairs Books.

Schneier, Bruce. *The Public/Private Surveillance Partnership.* Bloomberg. July 31, 2013.

[58] Information Commissioner's Office. *Right to Erasure.*

Wikipedia. *General Data Protection Regulation.*

General Data Protection Regulation. *Notification of a Personal Data Breach to the Supervisory Authority.*

[59] O'Connor, Nuala. *Reforming the U.S. Approach to Data Protection and Privacy.* Council on Foreign Relations. January 30, 2018.

[60] Klobuchar, Amy. *Honest Ads Act.* October 19, 2017.

Swisher, Kara. *Introducing the Internet Bill of Rights.* New York Times. October 4, 2018.

Dwoskin, Elizabeth. *Men (Only) At Work: Job Ads for Construction Workers and Truck Drivers on Facebook Discriminated on Gender, ACLU Alleges.* Washington Post. September 18, 2018.

[61] Rainie, Lee. *Americans Complicated Feelings About Social Media in an Era of Privacy Concerns.* Pew Research. March 27, 2018.

Campaign for Accountability. *New Polls Show Americans Want More Regulation of Tech Companies. June 26, 2018.*

Newton, Casey, Nick Statt, Michael Zelenko. *The Verge Tech Survey.* The Verge. October 27, 2017.

Ipsos/Reuters. *Facebook Poll 3.23.18.*

[62] Greenleaf, Graham. *Global Tables of Data Privacy Laws and Bills (5th Edition 2017).*

stored in local servers.[63] Still others, like Cambodia and Laos, have no data privacy laws in place.[64]

When considering their approach to data privacy, all countries must reckon with the EU's GDPR for two reasons: first, because it represents the strongest approach to data privacy taken to date, and second because any company that provides goods or services to EU citizens must demonstrate an adequate level of protection for their personal data.[65] The latter requirement is a source of concern to foreign companies that provide business process outsourcing (BPO) services to EU firms, many of which are based in tech-savvy developing countries like India, China, and Malaysia. The cost of complying with these requirements will depend on how EU regulators choose to implement and enforce the law.

A separate question is whether the GDPR is an appropriate model for data privacy in developing countries. Implementing a GDPR-like framework may be difficult for many countries, since the approach requires a high degree of legal and technical capacity, as well as institutional arrangements to handle consumer dispute resolution, compliance monitoring, and enforcement.

Although more countries are shifting to an approach like the GDPR, tech companies are unlikely to use it as the basis for a global operating standard because of the costs involved. As a result, the data privacy landscape will remain fragmented, making it harder for low-income countries that want to hold tech companies to strong privacy standards to do so. The one development that could change this would be for the United States to enact a privacy framework like the GDPR, in which case tech companies could find it more economical to set a single operating standard for their global operations.

Disinformation

Using disinformation (i.e., the deliberate spreading of falsehoods) to sway public opinion or incite violence is not a new phenomenon. During the Rwandan genocide, Hutu "hate radio" stations helped mobs target members of the Tutsi minority by broadcasting their names, addresses, and license plate numbers.[66] Similarly, Serbian state-run media stoked the ethnic resentment that triggered the collapse of Yugoslavia by spreading "exaggerated and false messages of ethnically based attacks by Bosnian Muslims and Catholic Croats against the Serb people."[67]

But digital platforms have supercharged the effectiveness of propaganda by making it easier to target receptive audiences at scale and low cost. While Russia's state-sponsored disinformation campaign in the United States has garnered the most attention, it is just one instance of a broader, global phenomenon.

[63] Capri, Alex. *Data Regulation -- Opportunities in the Red Tape*. Nikkei Asian Review. December 5, 2018.
[64] Dela Cruz, Gie. *Privacy and Data Protection Laws in Southeast Asia*. Anteneo de Manila University. May 15, 2018.
[65] Curtiss, Tiffany. *Privacy Harmonization and the Developing World: The impact of the EU's General Data Protection Regulation on Developing Economies*. Washington Journal of Law, Technology, and Arts. Fall 2016.
[66] Power, Samantha. *Bystanders to Genocide*. The Atlantic. September 2001.
[67] Wikipedia. *Propaganda During the Yugoslav Wars*.

The best known and most egregious case is that of Myanmar, where anti-Rohingya propaganda posted on Facebook played a key role in fueling the violence that has forced more than 700,000 members of the ethnic group out of the country.[68] The Myanmar military posted about two-thirds of this content, including a series of posts in which "the military's intelligence arm spread rumors on Facebook to both Muslim and Buddhist groups that an attack from the other side was imminent."[69]

Facebook's lackadaisical response to the abuse of its platform in Myanmar has been well-documented. Although the company received warnings about the propaganda as early as 2013, it did not begin to curb the behavior until the issue began receiving global attention in 2017.[70] In addition, the company employed only two Burmese-speaking content moderators until 2015 and did not ban pages connected to the military's disinformation campaign until 2018, despite clear violations of the platform's rules.[71]

The tally of incidents in which illicit actors have spread false information online to achieve political outcomes, sow discord, and incite violence continues to grow and most of these events are happening in the developing world.

- In the Philippines, where 97 percent of Filipinos with internet access have a Facebook account, supporters of President Rodrigo Duterte have used the platform to spread false information about his political opponents, including fake pornographic images and unsubstantiated criminal accusations.[72] A recent study by the University of Oxford's Computational Propaganda Research Project estimated that Duterte's staff spent $200,000 to hire workers to spread propaganda during his presidential campaign.[73]

- In Brazil, where 120 million of the country's 200 million residents use WhatsApp, false reports about fatal vaccine complications and government conspiracies posted on the app reportedly undermined the government's campaign to vaccinate people in the Amazon Basin against yellow fever.[74] In addition, a recent study by Brazilian fact-checking platform Agência Lupa found that more than half of the 50 most popular political images circulated in WhatsApp chat groups ahead of the

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[68] United Nations Human Rights Council. *Myanmar: UN Fact-Finding Mission Releases Its Full Account of Massive Violations by Military in Rakhine, Kachin and Shan States. September 18, 2018.*
 United Nations Human Rights Council. *Rohingya Emergency.*
[69] Mozur, Paul. *A Genocide incited on Facebook, With Posts from Myanmar's Military.* New York Times. October 15, 2018.
[70] Beech, Hannah. *Across Myanmar, Denial of Ethnic Cleansing and Loathing of Rohingya.* New York Times. October 24, 2017.
[71] Facebook. *Removing Myanmar Military Officials From Facebook.* August 28, 2018.
[72]Stevenson, Alexandra. *Soldiers in Facebook's War on Fake News Are Feeling Overwhelmed.* New York Times. October 9, 2018.
Albda, Davey. *How Duterte Used Facebook To Fuel the Philippine Drug War.* Buzzfeed News. September 4, 2018.
Ressa, Maria. *Propaganda War: Weaponizing the Internet.* Rappler. October 3, 2016.
[73] Bradshaw, Samantha and Philip Howard. *Troops, Trolls and Troublemakers: A Global Inventory of Organized Social Media Manipulation.* University of Oxford, Computational Propaganda Research Project.
[74] Molteni, Megan. *When WhatsApp's Fake News Problem Threatens Public Health.* Wired. March 9, 2018.

presidential election were misleading (8 were completely false, 16 were real pictures used out of context or related to distorted data, and 4 were unsubstantiated).[75]

- In Sri Lanka, fake news posted in early 2018 stoked ethnic tensions between Buddhists and Muslims, leading to physical attacks, shops being destroyed, and mosques being burned down. The government eventually directed internet service providers to block social media platforms to stem the violence.[76]

- In India, rumors spread for months about a child abduction ring, along with videos purporting to show kidnappings. Despite warnings from local officials that the rumors were false, mob attacks on suspected members of the ring killed at least nine people.[77] Social media rumors related to child abduction have triggered similar attacks in Indonesia and Mexico.[78]

- In Libya, "keyboard warriors" have used Facebook to help local militias target their rivals, including by providing coordinates for bomb attacks in at least one case.[79]

Society's growing exposure to disinformation is due in part to how the internet has changed the way we obtain information about news and politics. In the past, most people learned about current events through a "one-to-many" communication model, in which agents with some authority broadcast information to a mass audience. Today, however, virtually anyone can create and distribute content, and much of the information we receive is transmitted from "many-to-many" or "many-to-one." [80]

We also increasingly learn about current events through content shared by friends or members of like-minded groups, often without reference to its source. Our personal connection or affinity with the sharer gives this information an air of credibility.[81] And because information on newsfeeds, timelines, and chat groups is unique to each user, there is no public forum in which to debate and debunk false content. These factors make it easier

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[75] Benvenuto, Fabricio, Pablo Ortellado and Cristina Tardáguila. *Fake News Is Poisoning Brazilian Politics. WhatsApp Can Stop It.* New York Times. October 17, 2018.
Becker, Clara, Fabricio Benvenuto, Natália Leal, Chico Marés, Pablo Ortellado, Cristina Tardáguila. *Só 4 das 50 imagens mais compartilhadas por 347 grupos de WhatsApp são verdadeiras.*
[76] Fisher, Max and Amanda Taub. *Where Countries Are Tinderboxes and Facebook is a Match.* New York Times. April 21, 2018.
[77] Griffiths, James and Sugam Pokharel. *India WhatsApp Rumors: Mob Kills Man in Latest Attack, 30 Arrested.* CNN. July 16, 2018.
[78] Fisher, Max and Amanda Taub. *Where Countries Are Tinderboxes and Facebook Is a Match.* New York Times. April 21, 2018.
[79] Walsh, Declan and Suliman Ali Zway. *A Facebook War: Libyans Battle on the Streets and on Screens.* New York Times. September 4, 2018.
[80] Derakhsan, Hossein and Claire Wardle. *Information Disorder: Toward an Interdisciplinary Framework for Research and Policy Making.* Council of Europe. September 27, 2017.
Helles, Rasmus and Klaus Bruhn Jensen. *Speaking Into the System: Social Media and Many-to-One Communication. European Journal of Communication.* 2017.
[81] American Press Institute. *'Who Shared It?': How Americans Decide What News to Trust on Social Media.* March 20, 2017.

for unfounded rumors to go "viral" and harder to determine the credibility of online information.

The "track and trace" business model used by many digital platforms compounds this problem by making it easy for propagandists to find receptive audiences. As Dipayan Ghosh and Ben Scott argue, "disinformation campaigns are functionally little different from any other advertising campaign" and the same data collection and analysis tools that make targeted advertising possible also enable "precision propaganda."[82] Moreover, these tools are easy to use. One of the most striking aspects of the 2016 Russian disinformation campaign was how little technical capacity it required to conduct.

While much of the focus has been on social media platforms, text-messaging apps like WhatsApp, WeChat, and Viber pose an even greater challenge because their content is private and unregulated by platform operators, which means companies cannot monitor them or remove them for violating their policies. Although originally designed to support messaging between individuals or small groups, these apps have evolved to allow much larger discussions: WhatsApp now allows up to 256 people to participate in a chat group, while WeChat allows 500. Some of these groups are a channel for a near constant stream of shared content, much of it of unknown origin.[83] In India, some WhatsApp users received as many as 1,000 messages per day attempting to influence their votes ahead of elections.[84]

New internet users in the developing world are arguably more vulnerable to disinformation campaigns than their rich world counterparts because they are more likely to use only a handful of applications, which limits their ability to corroborate information. A recent study of female mobile internet users in Kenya, India, and Indonesia by GSMA found that, while most of the women surveyed were proficient using applications they were familiar with, such as Facebook or WhatsApp, they struggled to use unfamiliar applications and search for new services online.[85] As a result, they "were unable to expand their mobile internet usage beyond the few applications they were already familiar with (which were often suggested to them by their social circle)." [86]

Technology companies are now scrambling to slow the spread of disinformation on their platforms. Over the last two years, Facebook has disabled billions of fake accounts and now has more than 7,500 content moderators.[87] WhatsApp now limits the number of chat groups a user can forward a message to at the same time to five, and is conducting an ad campaign in India urging its users to "share joy, not rumors."[88] For its part, Google is investing $300 million over the next three years to "combat the spread of misinformation" and has adjusted

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[82] Ghosh, Dipayan and Ben Scott. *Digital Deceit: The Technologies Behind Precision Propaganda on the Internet*. New American Foundation. January 23, 2018. pg. 30

[83] *WhatsApp to Limit 'Forwards' to 5 Users to Contain Rumors*. Times of India. July 21, 2018.

[84] Bansal, Samarth, Krishna Pokharel, Newley Purnell, Bill Spindle. *Think American Elections Are Bad? Indian Voters Get 1,000 Texts a Day*. Wall Street Journal. May 15, 2018.

[85] GSMA. *Accelerating Digital Literacy: Empowering Women to Use the Mobile Internet*. June 6, 2015.

[86] ibid

[87] Sandberg, Sheryl. *Testimony of Sheryl Sandberg Before the United States Senate Select Committee on Intelligence*. September 5, 2018.

Madrigal, Alexis. *Inside Facebook's Fast-Growing Content-Moderation Effort*. The Atlantic. February 7, 2018.

[88] RT. *WhatsApp Hits Indian TVs With Ads to Tackle Fake News After Chat Rumors Turn Deadly*. December 3, 2018.

its ranking systems to give greater weight to "authoritative content."[89] In addition, YouTube has added information from Wikipedia and Encyclopedia Britannica to videos about popular conspiracy theories to provide alternative viewpoints.[90]

The companies are also working with civil society and third-party fact checkers to report and respond to false information online. This includes Projeto Comprova in Brazil, which brought together Brazilian media companies to report false claims that circulated online in the lead up to the 2018 presidential election.[91]

Due to the sheer amount of information available online, it is inevitable that most content moderation will be automated, and the sector is investing heavily in AI-based solutions to detect inappropriate behavior. For these solutions to be effective, however, they need to be trained on a large body of natural language processing data, which is lacking for less popular dialects.[92] For that reason, an AI solution that works well in the United States may not in a country like India, with its 22 major languages and hundreds of local dialects. Effective content moderation also requires an understanding of regional and linguistic context, as a phrase that may seem innocuous to many can be a dog whistle for others.[93]

When weighing what solutions to use, companies will need to determine how many resources they are willing to devote in countries where they are not profitable. For example, consider again the case of Myanmar, where civil society organizations called on Facebook to address deficiencies in several areas, including its overreliance on third parties to flag content, the lack of a proper emergency escalation mechanism, reticence to engage local stakeholders around solutions, and a lack of transparency.[94] In response to these and other criticisms, in mid-2018 Facebook created "a dedicated team across product, engineering and policy to work on issues specific to Myanmar," conducted a human rights impact assessment, and announced that it would increase its number of Burmese-speaking content moderators to at least 100.[95] While Facebook arguably has a responsibility to address these shortfalls, improving in these areas requires substantial resources and it is an open question whether tech companies will always be willing to do so in countries where the potential for profit is low.

Despite the initiatives taken by tech companies to reduce disinformation on their platforms, there is a growing belief among government leaders that the private sector cannot be left to

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[89] Shaban, Hamza. *Google Announces Plan to Combat Spread of Disinformation*. Washington Post. March 20, 2018.

[90] Newton, Casey. *YouTube Will Add Information From Wikipedia to Videos About Conspiracies*. The Verge. March 13, 2018.

[91] First Draft. *Our Field Work: Comprova*.

First Draft. *Our Field Work: Crosscheck*.

[92] Christopher, Nilesh. *Facebook Fake News Clean-up Hits a Language Barrier*. Economic Times. April 13, 2018.

[93] Allan, Richard. *Hard Questions: Who Should Decide What is Hate Speech in an Online Global Community?* Facebook Newsroom. June 27, 2017.

[94] Letter brought to our attention by: Douek, Eveyln. *Why Were Members of Congress Asking Mark Zuckerberg About Myanmar? A Primer*. LawFare Blog. April 26, 2018.

To view the *letter*.

[95] Facebook. *Update on Myanmar*. August 2018.

address this problem on its own. As with data privacy, governments are taking different approaches to address the threat of disinformation, which has resulted in a mix of policies. [96]

Striking the right balance between effective regulation and protecting civil liberties will be an ongoing challenge.[97] A recent report by the European Commission urges policymakers to eschew simple solutions like censorship in favor of a multidimensional approach that enhances the transparency of online news, promotes media and information literacy, and develops tools to empower users and journalists to tackle disinformation.[98]

Perhaps the biggest challenge is that some governments enact policies ostensibly aimed at addressing disinformation that they then use to stifle dissent, limit free speech, and attack journalists.[99] Freedom House reports that at least 17 countries approved or proposed laws that would restrict online media in the name of fighting "fake news."[100] Additionally, many governments use propaganda themselves: the University of Oxford's Computational Propaganda Research Project found that in 2017 alone, political parties or governments in 48 countries ran social media manipulation campaigns.[101]

How governments approach the problem of disinformation ultimately depends on how they prioritize values like transparency and freedom of speech. Unlike in the area of data privacy, where global coordination around a harmonized approach could nudge policymakers in the direction of a regime that protects individual rights, national media policies are less likely to be influenced by economic considerations. For that reason, civil society organizations and journalists will continue to play the lead role in holding governments accountable for how they regulate online communications.

Market Concentration, Data, and Innovation

In the past two years, the European Union has fined Google $7.7 billion for antitrust violations related to practices on its shopping platform and Android operating system.[102] By contrast, the US government has taken a hands-off approach as its largest tech firms have acquired potential competitors and promising start-ups by the dozen.

But with attitudes about regulating the tech sector in the United States changing, so too are views on the risks of market concentration. The Warner paper reflects this shift, asserting

[96] Funke, Daniel. *A Guide to Anti-Misinformation Actions Around the World*. Poynter. October 31, 2018.

[97] West, Darrell. *How to Combat Fake News and Disinformation*. Brookings Institution. December 18, 2017.

[98] European Commission. *Final Report of the High Level Expert Group on Fake News and Online Disinformation*. March 12, 2018.

[99] Magdy, Samy. *Egypt Says it Fights Fake News, Critics See New Crackdown*. Associated Press. September 17, 2018.
Amnesty International. *Malaysia: Anti-Fake News Bill a Dangerous Crackdown on Freedom of Expression*. March 29, 2018.
Gathright, Jenny. *Kenya's Crackdown on Fake News Raises Questions About Press Freedom*. National Public Radio. May 19, 2018.

[100] Freedom House. *Freedom of the Net 2018*. October 2018.

[101] Bradshaw, Samantha and Philip Howard. *Challenging Truth and Trust: A Global Inventory of Organized Social Media Manipulation*. University of Oxford, Computational Propaganda Research Project.

[102] Chee, Foo Yun. *Europe Hits Google with Record$5 Billion Anti-Trust Fine, Appeal Ahead*. Reuters. July 18, 2018.

that "the rise of a few dominant platforms poses key problems for long-term competition and innovation across multiple markets."

At first glance, worries about competitiveness appear to be less relevant for low-income countries, who are unlikely to produce firms that can compete with the global tech giants. But a growing number of governments in the developing world have expressed concern about their inability to regulate these companies despite their outsized influence on economic and social outcomes.

Large internet-based companies benefit from two interrelated barriers to competition: traditional network effects and access to a massive amount of customer data. Together, these factors create a self-reinforcing feedback loop: digital platforms become more useful as their number of users increases, and the more data they have, the better they can optimize services to attract more customers.[103] Ongoing advances in machine learning make this feedback loop even stronger and increase the value of data as a competitive difference-maker. As Andrew Ng, former chief scientist at Baidu (and formerly at Google) notes, for internet companies "data is the defensible barrier, not algorithms."[104]

Because only a handful of internet companies are collecting most of the world's data, the ability for other firms to develop data-driven innovations is limited. For this reason, much of the debate around market concentration has focused on how internet-based companies acquire and use personal data, and whether the data-for-services exchange that underlies the dominant online business model is conducted on fair terms.

The Warner paper weighs several ways to lessen the competitive advantage that large tech firms derive from their massive datasets. The least complicated solution is to increase transparency around how internet companies use the data they collect so consumers can make informed decisions. A more transformative approach would require platform companies to provide their users with a way to move, copy, or transfer their personal data. Such data portability requirements would, in effect, give users a property right over the personal data generated on digital platforms.

Similarly, Viktor Mayer-Schonberger and Thomas Range have proposed a progressive data-sharing mandate that would require every company above a certain size that collects and analyzes data to let other companies in the same market access an anonymized subset of that data.[105] Doing so, they argue, would encourage greater competition and spur innovation, since "if a wide variety of firms had access to market data, a firm's competitive advantage would rest on its ability to extract insights, encouraging companies to develop smarter algorithms and analytics."[106]

Another idea gaining traction, at least in scholarly circles, is that platform companies should financially compensate their users based on the value of personal data they provide. This

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[103] Turck, Matt. *The Power of Data Network Effects*. Mattturck.com. January 4, 2016.

The Economist. *The World's Most Valuable Resource is No Longer Oil, But Data*. May 6, 2017.

[104] Lohr, Steve. *Data Could Be the Next Tech Hot Button for Regulators*. New York Times. January 8, 2017.

[105] Mayer-Schonberger, Viktor and Thomas Ramge. *A Big Choice for Big Tech: Share Data or Suffer the Consequences*. Foreign Affairs. September/October 2018.

[106] ibid

idea, first proposed by Jaron Lanier in 2013 and extended by Eric Posner and E. Glen Weyl in their book *Radical Markets,* holds that treating platform users as "data laborers" and compensating them as such would provide a new and potentially significant source of income for individuals and improve the productivity of machine learning.[107]

Leaving aside the counterargument that data is only valuable when combined with the means to derive insights from it, there are several hurdles that must be overcome before this vision can become a reality. This includes finding a way to estimate the worth of disparate pieces of personal data whose value increases when it is combined with other data and tracking that value across multiple uses.

Once these challenges have been met, there is still the question of whether treating data as labor would provide a meaningful economic benefit to users. As discussed above, the revenue that tech companies collect on a per customer basis is quite low even in rich countries and drastically smaller in the developing world (as a reminder, Facebook's average revenue per user is $26.76 in the United States and Canada and $1.86 across countries in Africa, Middle East, and Latin America). Thus, the idea that "data labor has the potential to constitute a significant fraction of income" seems unrealistic, at least for the moment.[108]

But there are other reasons why governments may want to assert greater control over how tech companies use their citizens' data. In his paper, "Data, development, and growth," Berkeley Professor Steven Weber argues that countries locked into a role of "raw data supplier and consumer of imported value-added data products" will be bound to a lower growth path relative to countries where tech companies use data to create high value-added services.[109] For that reason, he argues that, "(unless there is a definitive reason to believe and act otherwise) it will be better for countries to internalize significant parts of the data economy within their own borders."[110]

This perspective, which Weber calls "data nationalism," discounts the benefit that consumers gain by using applications trained on a global dataset and the risk that tech companies may choose to withdraw services from countries that pursue overly burdensome requirements.[111] But this view is becoming increasing popular in the developing world, where more countries are using it to justify laws that place limits on how and where tech companies use the data their citizens provide.

These restrictions vary in scope but generally require firms that collect data about a country's citizens to store or process that data within the country's jurisdiction.[112] The growing list of developing countries with such "data localization" laws include China, Indonesia, Malaysia,

[107] Lanier, Jaron. *Who Owns the Future.* Simon and Schuster. March 4, 2014.
Posner, Eric and Glen Weyl. *Radical Markets: Uprooting Capitalism and Democracy for a Just Society.* Princeton University Press. 2018.
[108] Goff, Leonard, Diego Jimenez Hernandez, Imanol Arrieta Ibarra, Jaron Lanier, Glen Weyl. *Should We Treat Data as Labor? Moving Beyond "Free".* American Economic Association Papers and Proceedings. May 2018.
[109] Weber, Steven. *Data, Development, and Growth.* Business and Politics. September 2017.
[110] ibid
[111] Weber is not the first to use the term "data nationalism." See Chander, Anupam and Uyen P. Le. *Data Nationalism.* Emory Law Journal. Vol. 64, No. 3, March 2015.
[112] Wikipedia. *Data Localization.*

Nigeria, and Vietnam.[113] Kenya and India also have draft privacy bills that include data localization requirements.[114]

In the past, governments have justified such laws on the grounds that they enhance cybersecurity, aid domestic law enforcement, and protect their citizens' privacy. But more recently they have cited concerns about staying competitive in a data-driven economy. For example, the committee that drafted India's Personal Data Protection Bill argued that forcing firms to keep a copy of personal data provided by Indian consumers in the country would promote the growth of the country's digital economy, noting that "the growth of AI is heavily dependent on harnessing data, which underscores the relevance of policies that would ensure the processing of data within the country using local infrastructure built for that purpose."[115]

Although more research on the effect of data localization laws on economic outcomes is needed, the arguments in their favor are generally unconvincing. Forcing companies to store data on local servers will not change where value-added processing takes place, while forcing companies to process data locally would raise the cost of doing cross-border business, resulting in the same distortionary effects as other protectionist policies.[116] The cyber security justifications for data localization are also doubtful.[117]

3. A Better Path

Governments cannot afford to forego the benefits that internet access and digital services provide to their citizens and economy, and it is precisely because these services are necessary that policymakers must minimize the risks associated with them.

In response to the concerns about data privacy, disinformation, and market concentration discussed above, governments are reassessing their relationship with the global tech giants and, in many cases, enacting policies that raise barriers to the cross-border flow of data and put the largely global and open nature of the internet at risk.

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[113] Information Technology Industry Council. *Data Localization Snapshot*. January 19, 2017.
Gnanasagaran, Angaindrankumar. *Data Localization in Southeast Asia*. The ASEAN Post. April 15, 2018.
[114] Frizell, Sabina. *Kenya's Data Privacy Bill Could Harm the Economy*. Council on Foreign Relations. November 20, 2018.
[115] Committee of Experts under the Chairmanship of Justice B.N. Srikrishna. *A Free and Fair Digital Economy: Protecting Privacy, Empowering Indians*. 2018.
[116] Baur-Yazbeck, Silvia. *3 Myths About Data Localization*. CGAP Blog. August 21, 2018.
Ahmex, Usman and Anupam Chander. *Information Goes Global: Protecting Privacy, Security, and the New Economy in a World of Cross-Border Data Flows*. International Centre for Trade and Sustainable Development (ICTSD) and World Economic Forum, 2015.; UC Davis Legal Studies Research Paper No. 480. Available at Fraser, Erica. *Data Localisation and the Balkanisation of the Internet*. SCRIPTed 359. December 2016.
[117] Cory, Nigel. *Cross-Border Data Flows: Where are the Barriers, and What Do They Cost?* Information Technology & Innovation Foundation (ITIF). May 1, 2017.

While the trend toward an internet that is increasingly fragmented by national regulation may seem inevitable, another path that preserves the benefits derived from an open internet while minimizing its risks remains possible. Taking it will require a comprehensive approach that includes the following elements:

Greater leadership by the United States

Because the United States is home to the world's largest internet companies, it benefits more than any other country from an open internet and finds itself in a natural position of authority. To date, however, it has largely ceded this authority by taking a hands-off approach towards regulating data-driven tech companies.

As the United States has lagged, others have stepped forward with internet governance models aligned with their values. This includes the European Union, which has embraced an activist model that seeks to preserve individual privacy and market competition through regulation, and China, which has sought to control the flow of information online and use digital tools to support surveillance.[118]

The concern is that an increasing number of governments will emulate China's repressive model. And while it may be naïve to think that policymakers who find this approach appealing might be persuaded to choose a different path, this is the task at hand for those who seek to preserve an open internet that supports democratic rights.

One possible counter is to increase the economic benefits associated with a more open but well-regulated governance model. For example, the United States could unlock significant economic gains if it pursued a data privacy regime that was similar enough to the GDPR to allow companies around the world to comply with both by taking the same measures. A country that takes a regulatory path that makes it harder for its companies to comply with EU-US privacy regulations would put itself at a competitive disadvantage, the magnitude of which would depend on the size of the economic "bloc" using the US-EU approach.

In this and other ways, the choices US policymakers make to regulate their own domestic internet companies will influence the decision set faced by policymakers in other countries. For this reason, it is important to raise the awareness of US legislators about the risks that ineffective US regulation poses for democratic stability and economic growth domestically and worldwide.

Better global coordination

Global internet governance is usually associated with the multi-stakeholder approach that evolved out of the communities that created the internet and later the web.[119] While that approach has been successful in dealing with matters related to the internet's technical

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[118] For a more detailed breakdown of different national approaches to data governance see McGowan, Kathleen, Priya Vora, Matthew Homer and Jonathan Dolan. *Personal Data Empowerment: Restoring Power to the People in a Digital Age*. Pathways for Prosperity Commission Background Paper Series; no. 11. Oxford, United Kingdom.

[119] Internet Society. *Internet Governance: Why the Multistakeholder Approach Works*.

architecture, such as ICANN's handling of domain names, it has been unable to address socially contested issues.[120]

In the absence of strong mechanisms for global coordination, sovereign nations have asserted control of internet regulation with little heed to the cross-border implications of their policies. But the increasingly political and social nature of the debates around internet governance argue in favor of considering when global solutions may be appropriate. For that reason, the recent announcement by Japanese Prime Minister Shinzo Abe that Japan will develop a data governance track for this years G20 Summit was encouraging.[121]

Some issues will be more amenable to global coordination than others. For example, how countries seek to rein in online disinformation campaigns (or use those campaigns to their advantage) will depend on how they prioritize values like transparency and freedom of speech. Global bodies are unlikely to be any more effective at influencing how governments deal with communications conducted online than they are at swaying national policies regarding freedom of the press.

The rationale for global coordination is stronger in areas where cross-border spillovers are more immediate or where the efficiency gains from coordination are greater. Data privacy falls into the latter category because harmonizing privacy standards could reduce the cost of compliance for globally active companies. While a government's approach to data privacy will necessarily reflect its values, economic considerations will also be a factor, which raises the potential for global coordination.

Informed policymaking

There is broad agreement in the development community that getting digital policy "right" is an important prerequisite for growth. However, little attention has been paid to how governments should engage with the global tech companies whose services play an increasingly important role in their economies. One reason for this is the absence of a conceptual framework around the value of data, as reflected by the ongoing debate about whether oil or labor is the more useful historical analogue for data's role in the digital economy.[122]

A more coherent theory of data's economic value and a means to measure that value would help governments design more effective digital strategies. Developing such a framework will not be easy, however, as it will require finding ways to (1) estimate the worth of disparate pieces of personal data whose value depends on being combined with other data to produce useful information and (2) track the value of data across multiple uses.

The good news is that technologists are now exploring new ways to enhance the transparency of this combinatorial process and give internet users more control over how their personal data is used.[123] If successful, these efforts could make it easier to track how

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[120] Malcolm, Jeremy. *How Do We Achieve an Open, Secure, Trustworthy, and Inclusive Internet?*. Electronic Frontier Foundation. June 21, 2016.

[121] Speech by Shinzo Abe at the World Economic Forum, January 23, 2019.

[122] This section draws extensively from points made to us by Toby Phillips, Head of Research and Policy, Pathways for Prosperity Commission, University of Oxford.

[123] Ongoing initiatives in this area include Solid and GLIAnet.

individual pieces of data flow through the digital economy and measure their value. Ultimately, it may even be possible to develop input-output tables for data like those used to account for value-added production in global value chains. This analysis could serve as the basis for better informed negotiation between governments and internet companies.

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An open internet is a global public good that provides myriad social and economic benefits for its users. For that reason, preserving it should be a policy priority for the development community, as well as policymakers in the developed world. While there is no guarantee that taking the steps outlined above would slow the trend towards a fragmented internet, they are necessary conditions for success.