

# Paying Attention to the Poor:

## Digital Advertising in Emerging Markets



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**“I think the old ‘Let’s build a Web site, we’ll put a lot of ads on it, and that will pay for the journalism’ —I’m not sure that’s going to work...**

**We expect display advertising to have pretty much vanished by 2025.”**

**Tom Standage**

Digital Strategy Chief for *The Economist*<sup>1</sup>

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<sup>1</sup> Joseph Lichterman, “The Economist’s Tom Standage on Digital Strategy and the Limits of a Model Based on Advertising,” *NiemanLab*, April 1, 2015, <http://www.niemanlab.org/2015/04/the-economists-tom-standage-on-digital-strategy-and-the-limits-of-a-model-based-on-advertising/>.

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# **Executive summary**

## Executive summary

**Large swathes of the population in emerging markets are coming online for the first time, creating enthusiasm in both the public and private sectors for serving the “next billion” Internet users.**

While there is increasing recognition that the Internet experience of these users is fundamentally different from that of the “first billion,” research on this topic tends to focus on the drivers of Internet access, especially mobile network coverage. This study instead focuses on the content layer, examining how the dominant commercial model of the web—advertising—is constrained in emerging markets, and how this shapes the opportunities for Internet and digital businesses.

## WHAT

**The digital advertising industry is growing rapidly, yet revenues and monetization potential in emerging markets are an order of magnitude lower than developed markets.**

Strong growth of the digital advertising sector is visible in almost all markets, as ad dollars follow consumer behavior and move from traditional media to digital channels. Yet there are sharp differences between developed and emerging markets—for example, the U.S. digital advertising sector was an estimated \$72 billion in 2016, compared to only \$980 million in India.

## WHY

**Demand is limited in emerging markets because people are poor and difficult to reach.**

Economic studies show the strong correlation between advertising industry revenues and the size of the economy, meaning that overall demand in emerging markets will only grow with consumer spending levels and overall economic activity.

Digital advertising faces additional challenges, in that much of the population in emerging markets must contend with low-end devices, expensive data, and unreliable networks, which limit their ability to engage with digital content and services. These constraints make it more difficult for publishers and advertisers to reach audiences with cohesive and scalable digital campaigns.

## IMPACT

**Limited monetization potential means businesses rely on developed markets for the bulk of their revenue.**

Many content producers and app developers in emerging markets focus their efforts at monetization in more lucrative markets, not domestically, which has negative effects on domestic content creation and competition. Our analysis of Facebook’s business argues that even with its global scale, the firm is likely not profitable in many of the emerging markets where it is growing its user base, highlighting its reliance on Western markets for most of its revenue. Limited monetization makes it unlikely that ad-supported businesses will be able to reach substantial scale in emerging markets.

# Introduction

## Introduction

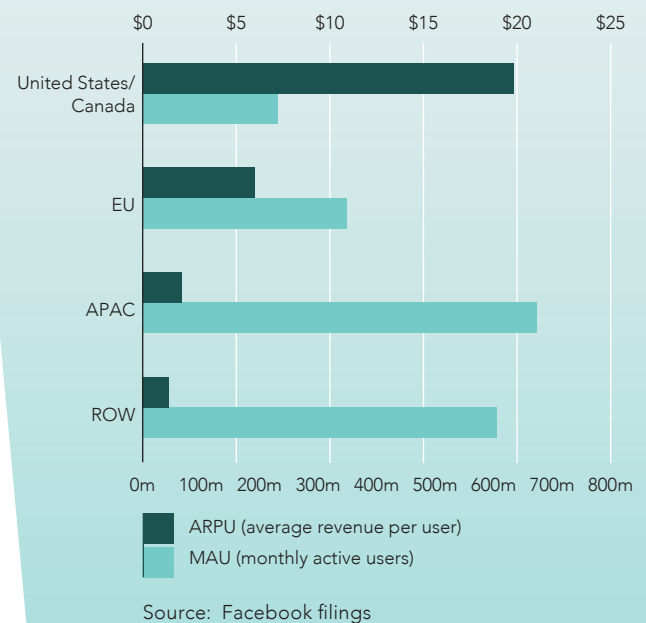
### The next billion... ads?

Advertising has played a fundamental role in the development of the global digital economy. Ads have funded businesses on the World Wide Web and many of the most popular Internet services for decades, and advertising continues to be the default commercial model for digital content businesses ranging from news to video to social networks. As a result, digital advertising has become a big business: Two of the top five largest companies in the world, Google and Facebook, earn almost all of their revenue from digital advertising.<sup>2</sup>

While most of the money that Google, Facebook, and other platform firms are making comes from the developed economies of North America, Europe, and East Asia, user growth in these regions has plateaued. Global firms are now looking to the emerging economies of South Asia, Latin America, and Sub-Saharan Africa as the growth markets of the future, and you are just as likely to hear about “bringing the next billion online” on a tech company investor call as at an international development conference.

Yet the digital advertising model that has evolved in the West appears unable to sustain itself in emerging economies. Facebook, which has invested heavily in building its presence in lower-income markets, earns a quarterly ARPU (average revenue per user) of \$1.41 in Africa and Latin America, and \$2.07 in Asia-Pacific, an order of magnitude less than the \$19.81 it earns in the U.S. and Canada (see Figure 1). This is problematic for Facebook because the emerging market regions are where the bulk of its users are, and where it expects almost all of its future user growth;<sup>3</sup> its inability to monetize those users at anywhere near U.S. market ARPU means that just over half of its total global revenue comes from only 12% of its users.<sup>4</sup> This dramatic difference in monetization highlights

**Figure 1 Facebook ARPU/MAU, Q42016**



the challenges that traditional advertising models face in emerging markets—if Facebook, with its immense scale and dominant market position, is currently earning so little revenue from digital advertising in these markets, what does that mean for the rest of the industry?

The fundamental challenge facing digital advertising businesses in emerging markets is that 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 in any format. This reality is often masked by headlines proclaiming the dramatic growth in digital advertising worldwide. Yet digital is growing largely by taking share from TV, radio, and print, not increasing the overall advertising pie. All of which means there is a ceiling to how much digital ad revenue is available in any given market, and that will only change slowly over time with broad economic growth and consumer spending.<sup>5</sup>

<sup>2</sup> In early 2017, Google parent Alphabet was the #2 firm by market cap, and earns 90% of its revenue from digital advertising, while Facebook was #7, and earns 97% of its revenue from advertising.

<sup>3</sup> For example, Facebook in its 2017 annual 10-K SEC filing: “We expect that user growth in the future will be primarily concentrated in those regions where ARPU is relatively lower...” <http://d11ge852tjjqow.cloudfront.net/CIK-0001326801/bc7a177c-abb0-4b3c-a11b-ee67c656c2e1.pdf>.

<sup>4</sup> ARPU, MAU, and revenue figures from Q4 2016.

<sup>5</sup> Eric Chemi, “Advertising’s Century of Flat Line Growth,” Bloomberg, March 3, 2014, <https://www.bloomberg.com/news/articles/2014-03-03/advertisings-century-of-flat-line-growth>.

## Introduction

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Yet there are more specific constraints to digital advertising. The limited accessibility and affordability of Internet access for large swathes of the population severely constrains individuals' ability to engage with digital content and services. Those who do get online must cope with low-quality hardware, expensive data plans, unreliable network coverage, and a lack of relevant content, all of which create an Internet experience that is very different from that enjoyed by most people in developed markets. While these constraints are typically viewed as barriers to the individual's participation and effective use of Internet technologies, these same factors make it very difficult for advertisers (and other commercial entities) to reach digital consumers with campaigns or services that are cohesive and scalable.

We argue that these constraints make it unlikely that digital advertising, at least in its current form, can support the same scale of business in emerging markets that it has in the developed markets. Google, Facebook, and other global platforms will continue to commit resources to markets such as India as a way to placate shareholder demands for user growth, but they are likely unprofitable in many of these markets. Their ongoing efforts are only possible due to the outsize revenues they capture from the U.S. and other developed markets.

For most consumers, where these firms earn revenue is of little importance. Having access to sophisticated digital content and products, at no cost, is a significant benefit to people around the world. But these dynamics mean consumers in emerging markets are likely to have fewer choices, as local content providers and digital businesses will struggle to earn enough from their home markets to compete with the global platforms. There will be exceptions—for example, premium brands that get better ad rates, and local language content that serves large, untapped segments (e.g., Hindi)—but anything lower-value and undifferentiated has to compete in a global marketplace where algorithms drive ad rates down to the minimum. For many emerging market users, their online experience is currently dominated by (or conflated with) Western Internet firms, and this is unlikely to change in the medium term.

Importantly, the Internet giants are seeking to build more than their core platforms—both Google and Facebook are making ambitious investments into next-generation Internet access technologies for connecting the “next billion” users to the Internet. Facebook continues to expand its payments functionality in Messenger, while Google's CEO has talked about building support into Android for

**Google, Facebook, and other global platforms will continue to commit resources to markets such as India as a way to placate shareholder demands for user growth, but they are likely unprofitable in many of these markets.**

India's UPI payments network. As these two platforms continue to envelop other sectors and functionality into their ecosystems, their sheer market dominance means that, despite the challenges outlined above, the advertising business model is likely to play a key role in how the digital economies of these markets will develop.

We think it is therefore an important time to analyze the opportunities and challenges facing digital advertising in emerging markets. The outcomes in question are not just about market competition and which types of firms are most likely to win and which lose, though that is important. But the commercial models that gain traction in the next five to ten years will also go a long way toward determining how the next generation of users in emerging markets engages with digital products and services.

### Structure of the report

In Part I, we provide a high-level landscaping of the digital advertising industry in emerging markets, describing some of the major shifts in the industry being driven by technology and business model innovations. We use a range of metrics to show the dramatic differences in ad revenues and monetization potential between developed and emerging markets, and discuss the implications of these differences for publishers and other producers.

In Part II we explore the reasons for the low monetization potential in emerging markets, starting with the economic imperative of consumer spending as a driver of advertising demand. But we go deeper by exploring how digital advertising is further limited by the accessibility and affordability of devices and data and its impact on the user experience. We use the concept of an individual's “digital



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## Introduction

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repertoire”—the availability of devices, affordability of data, level of digital literacy, availability of local content, and so on—to frame her ability and willingness to engage with digital technologies and services.<sup>6</sup> This lens offers a unique perspective to view the innovations that we see in the industry, as different actors experiment with market responses to such constraints.

In Part III we frame the previous two sections with a case study of Facebook, illustrating the challenges and opportunities of digital advertising in emerging markets. We describe how the multiple versions of the Facebook product that have been developed to extend its reach into low-income populations are less lucrative, than the core product used in developed economies. With an original analysis of the company’s financials we argue that Facebook is likely losing money in some of its lowest-income markets where the costs of rapidly growing user bases simply outstrip revenue.

And finally in Part IV we discuss the implications of our analysis, asking broad questions about how the industry may evolve. We argue that content publishing will lose the “middle”: On the one hand, it will increasingly split between high-quality, paid content and low-quality, ad-supported content, with little middle ground. And it will also split between hyper-local, local-language content and globally dominant English content from the largest providers. We argue that the access and affordability constraints in emerging markets can be somewhat mitigated by ad subsidy models that move beyond content to the access layer, but probably only for some access models, and the long-term economics remain unproven. And finally, we discuss how the economics and business models for personal data may evolve differently in markets where the traditional mechanism of collecting and monetizing data, digital advertising, works differently than in the West.

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6 Jonathan Donner, *After Access: Inclusion, Development, and a More Mobile Internet* (MIT Press, 2015).

# Part I

## Industry landscapes

## Part I. Industry landscapes

### An industry in flux

Advertising on the Internet started in much the same way as it did with the analog media that came before: display advertisements sold alongside content relevant to the audience the advertiser wanted to reach. But as the digital and networked nature of the Internet enabled new models for the production, distribution, and consumption of content, advertising also changed. New product categories such as online search, social media, and mobile apps have led to new behaviors, an explosion of user data, and new forms of monetizing that attention, resulting in some of the most lucrative advertising formats in history.

Part of why these new product categories work so well is that digitization has brought new capabilities to the industry. Programmatic ad exchanges, where algorithms and software automate much of the process for buying and selling inventory and creative, have created new digital supply chains that facilitate billions of hyper-efficient transactions taking place in milliseconds. These auctions are driven by sophisticated data profiling and audience targeting, which requires the collection of vast reams of personal data and digital exhaust that are aggregated, disaggregated, synced and sold among a global network of publishers, advertisers, and data brokers. And platforms and content aggregators such as Facebook are enabling new behaviors around content discovery, consumption, and sharing, leading to a restructuring of roles and value capture in the ecosystem.

Yet the same forces driving more effective, efficient, and scalable advertising are also breaking down relationships and trust within the industry. The programmatic ad tech sector has become so complex and opaque that human control

seems irretrievably lost; the IAB estimates automated fraud cost the industry \$7 billion in 2016,<sup>7</sup> and the recent furor over ads (some of them by the UK government) appearing next to videos by Islamic extremists and white supremacists on YouTube has highlighted once again what can happen when algorithms assume content editorial duties.<sup>8</sup>

The relentless data collection and profiling by ad tracking firms has also created a backlash, as consumers use ad blockers to push back against the security, privacy, and user experience impact of increasingly intrusive ad technology. Use of ad blockers has grown dramatically, with an estimated 615 million devices worldwide in early 2017,<sup>9</sup> both via 3rd-party extensions but also by the inclusion by Apple and possibly now Google<sup>10</sup> of ad-blocking technology directly in their browsers.

Together, these are significant shifts shaping the next generation of digital advertising in what has become a global industry. But these changes will have different impacts in the more lucrative markets of North America, Western Europe, and East Asia compared to the lower-revenue markets of the Global South, where digital economies are evolving in response to very different market and user dynamics. In the rest of this section we provide a high-level view that quantifies these differences.

### Growth, but limited revenue in emerging markets

Globally, digital advertising was a \$195 billion industry in 2016, equaling 35% of the overall ad spend of \$550 billion. That share will continue to grow sharply—while the overall ad industry is growing at 5%, digital is growing at 20% annually. And within digital, the share of advertising dedicated to mobile Web sites and apps is the fastest-growing segment, currently about half of all digital but expected to reach almost 75% by 2020 (Figure 2).<sup>11</sup> Therefore, while total advertising spend across all media has remained relatively steady (as percentage of GDP) over the past century, digital will continue growing its share of that spend.<sup>12</sup>

7 George Slefo, “Next-Level ‘MethBot’ Ad-Fraud Scam Cost Advertisers At Least \$3 Million Per Day, WhiteOps Says,” <http://adage.com/article/digital/ad-fraud-scheme-cost-advertisers-3-million-day/307235/>.

8 Zlata Rodionova, “Global Brand Names Inadvertently Funding Neo-Nazi and Islamist Extremist Websites through Online Adverts,” *The Independent*, February 9, 2017, <http://www.independent.co.uk/news/business/news/global-brand-names-fund-neo-nazi-pornographic-islamist-extremist-adverts-websites-mercedes-benz-a7571001.html>.

9 “2017 Global Adblock Report” (PageFair, February 1, 2017), <https://pagefair.com/blog/2017/adblockreport/>.

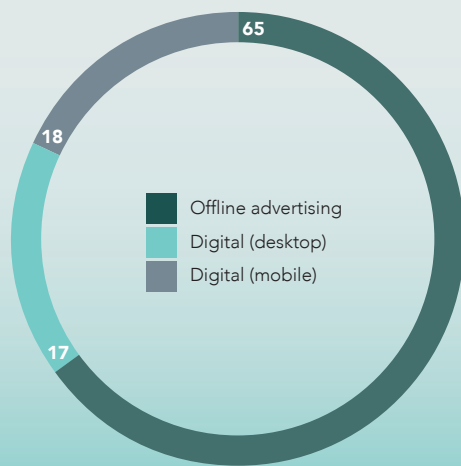
10 Darrell Etherington, “Google Said to Be Planning a Built-in Ad Blocker for Chrome,” *TechCrunch*, <http://social.techcrunch.com/2017/04/19/google-said-to-be-planning-a-built-in-ad-blocker-for-chrome/>.

11 “Worldwide Ad Spending: EMarketer’s Updated Estimates and Forecast for 2015–2020,” October 27, 2016, <https://www.emarketer.com/Report/Worldwide-Ad-Spending-eMarketers-Updated-Estimates-Forecast-20152020/2001916>.

12 Chemi, “Advertising’s Century of Flat Line Growth.”

## Part I. Industry landscapes continued

**Figure 2** Global advertising spend, 2016 (est.)



Source: eMarketer

This ongoing growth and investment in digital, especially mobile, reflects changing behavior as consumers everywhere spend more time with networked devices, and less time with traditional media such as print and TV. Yet advertisers are only slowly overcoming the inertia to adjust their ad spend accordingly.<sup>13</sup> While this lag in reallocating ad spend to digital is visible globally, the ratio of digital to offline is highest in the most lucrative digital markets (the U.K. is the leader, breaking the 50% mark in 2016), and much lower in emerging markets (India and Brazil are around 17% digital).

While digital's share is growing everywhere, the actual revenue numbers for the industry in most emerging markets are very small compared with the West (Figure 3). The U.S. is the clear leader, with an estimated \$72 billion spent in 2016, 10x – 100x more than emerging economies such as Brazil (\$3.13 billion), India (\$980 million), or Indonesia (\$380 million).<sup>14</sup> The much lower revenue in the emerging markets is fundamentally due to their smaller economies, and the simple fact that lower-income populations are less valuable for advertisers to reach. For example, Africa has 16% of the global population, yet only 1.5% of global ad spend.<sup>15</sup> But digital advertising in emerging markets has additional limits to growth: the addressable audience is relatively small (compared to traditional media), usage is

fragmented across devices and channels, and consumption is highly constrained by data affordability, all of which make it more difficult to conduct effective ad campaigns.

Brands and agencies we spoke with are slowly increasing their spending, but many local and regional firms don't have deep expertise with digital, and remain hesitant to commit significant budget. Part of that hesitation is that larger buyers are accustomed to being able to target very large audiences (millions) with a single check using TV or radio, and struggle to find digital publishers with equivalent reach. Instead, they have to cobble together smaller buys among many different publishers. And even then, the lack of reliable 3rd-party audience metrics leaves many brands and agencies wary of working with smaller publishers—as one agency said, “There's a lot that you can do with a screenshot of your Google Analytics page and Photoshop.” The complexity and opacity of digital in emerging markets makes it easier for most brands to stay with their traditional media advertising strategies.

### Producers follow the money

For publishers trying to offer ad-supported content, apps, and services in these markets, the low rates at which traffic can be monetized means that audiences or user bases must be that much larger to capture sustainable revenue. A small publisher with an audience of 100,000 unique visitors may be able to sustain a very small business if that audience is based in the United States, but that same operation in India may require 1 million unique users to earn similar revenue.

Therefore the location of the audience—a proxy for value to advertisers—matters, and becomes a strategic decision for many content producers. Of course, in many respects, the publisher of a news Web site or developer of a video-streaming app can't control where their product will become popular; part of the beauty of the Web and the global app stores is that people almost anywhere can consume content created a world away. Yet significant traction with different audiences typically requires language translation or other kinds of localization—for example, changing the language in the description in the app store—to make the content or product accessible. And if the producer is going to promote their product, whether via Facebook app install ads or Google search listings, they typically have to make decisions about which geographical regions to focus on.

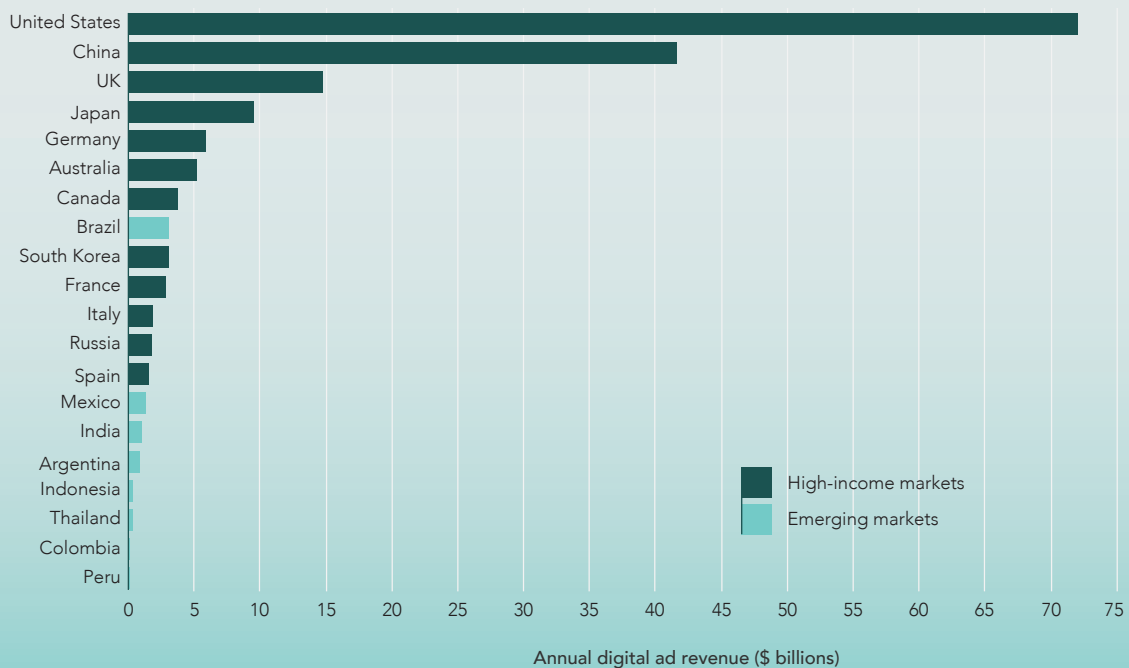
<sup>13</sup> Mary Meeker, “2016 Internet Trends Kleiner Perkins Caufield Byers,” 2016, <http://www.kpcb.com/internet-trends>.

<sup>14</sup> “Worldwide Ad Spending: EMarketer's Updated Estimates and Forecast for 2015-2020.”

<sup>15</sup> “Advertising in Africa” (Balancing Act, July 2016).

## Part I. Industry landscapes continued

**Figure 3** Digital ad revenues, select markets (2016)



Source: eMarketer, Global Digital Ad Spending, 2016

We spoke to an independent developer of a popular streaming radio app, and while based in India, they don't focus on their domestic market at all (as a result, only 10% of their traffic comes from India). Instead they localize the app for the U.S., Japan, and South Korea, where they earn 5x to 10x the CPM rate compared to the Indian market.

*“For small developers like us, without VC funding, you don't have time to build a large audience first and then wait for a market like India to mature and provide revenue. We have to focus on those markets where we can earn revenue today.”*

This sentiment echoes previous research by Caribou Digital on the app economy, where almost every app developer interviewed was actively targeting the most lucrative markets of the West and East Asia.<sup>16</sup> While it's impossible to quantify, it's reasonable to assume that this preference for targeting richer markets results in a lower amount of activity and innovation being directed domestically in emerging markets. In other words, when producers can't earn sufficient ad revenue from their home market, it likely depresses domestic content production and thus demand side drivers for Internet usage.<sup>17</sup>

<sup>16</sup> “Winners and Losers in the Global App Economy” (Caribou Digital, February 2016), <http://cariboudigital.net/wp-content/uploads/2016/02/Caribou-Digital-Winners-and-Losers-in-the-Global-App-Economy-2016.pdf>.

<sup>17</sup> Mark Surman, Corina Gardner, and David Ascher, “Local Content, Smartphones, and Digital Inclusion,” December 31, 2014, [http://www.mitpressjournals.org/doi/pdf/10.1162/inov\\_a\\_00217](http://www.mitpressjournals.org/doi/pdf/10.1162/inov_a_00217).

# Part II

Limits to growth:

Access and affordability

## Part II. Limits to growth: Access and affordability continued

In the previous section, we described the advertising industry from a macro or top-down perspective, showing the critical differences in monetization potential between developed and developing markets from the viewpoint of the platforms and producers. In this section, we take a bottom-up, or user-centric view, as it is the user's attention which is the finite resource in the digital ecosystem.<sup>18</sup>

Understanding the access and affordability constraints faced by most users in emerging markets reveals the most important drivers shaping how individuals engage with digital content and services, and how this differs compared to the West. We argue that these constraints result in smaller, more fragmented, more limited audiences that are difficult for advertisers to reach with cohesive ad campaigns. Access is thus a double-edged sword—the constraints that limit people's access to the Internet and consumption of digital content and services also serve to limit advertisers' and publishers' ability to monetize their attention, thereby reducing demand and lowering the value of digital advertising for all players. This dynamic will change over time, as decreasing access costs and rising incomes make usage more affordable to larger and larger segments of the population, but the timescale of such change is hard to predict.

### Digital repertoires

Headlines about overcoming the “digital divide” oversimplify usage into a binary issue, when in reality usage is a set of continuums on multiple dimensions. The available network (geographic coverage, reliability, speed, cost), the device being used (operating system, screen size, storage capacity, battery life, font selection), the available digital services, and the digital literacy of the individual each present a set of affordances and constraints that shape usage behavior. Taken together, these factors create a complex

set of often interdependent characteristics that Jonathan Donner calls the “digital repertoire” of the individual.<sup>19</sup>

In contrast to binary categorizations of adoption/non-adoption, digital repertoires provide a more useful lens for understanding gradations of usage and engagement. Put simply, while someone accessing Facebook on a \$30 feature phone on a 2.5G network and prepaid data bundle is “online,” her experience—and how she engages with the service—is very different from someone accessing Facebook using a Windows 10 laptop on an unlimited high-speed broadband connection. In this section we highlight three key layers—the device, network access, and relevant content—which together describe the most important constraints to how people consume digital content and services. With each layer we describe user coping strategies as well as examples of how industry actors are trying to mitigate the barrier.

### Device

While smartphone penetration is rising, feature phones (Internet-enabled), and basic phones (voice and text only) are still the majority of mobile connections in emerging markets.<sup>20</sup> Because basic phones can't access the Internet, reaching these users—who tend to be predominantly lower-income and rural—is usually achieved via SMS messaging (USSD and voice are the other options). Typically this is only done by those NGOs and large FMCG brands for whom poor rural populations are a core part of their constituency.<sup>21</sup> While SMS lacks the capabilities of Internet-based advertising, the familiar, interactive nature of SMS messaging allows advertisers to conduct potentially more in-depth and engaging campaigns.

As a step up from basic phones, most feature phones can access the Internet, and many of the newest versions can look like smartphones with large color touchscreens. But feature phones can't load modern smartphone apps, or process the JavaScript tags that most ad networks and trackers rely on. For content producers, this means that commercializing via an Android app instead of mobile Web site ignores a large part of the connected population.

<sup>18</sup> The increase in users adopting Internet technologies and consuming digital content, as well as the increase in individuals' time spent with such, is currently increasing the amount of “eyeball-hours,” and thus is putting downward pressure on CPM/CPC rates. But user growth will plateau, and there are a limited number of hours in the day, hence the supply of attention is effectively finite.

<sup>19</sup> Donner, *After Access: Inclusion, Development, and a More Mobile Internet*. p.103.

<sup>20</sup> These categories are not well-defined, but feature phones are generally considered to be Internet- or data-capable, while basic phones can only be used for voice, SMS, and USSD. For SSA, see “Feature Phone User Survey Feature Phone Report” (Balancing Act, August 2014), <http://www.balancingact-africa.com/docs/reports/Feature-Phone-Report-FV.pdf>. Also see <http://economictimes.indiatimes.com/tech/indian-mobile-handset-market-in-2017-low-cost-4g-featurephones-may-keep-lead-over-smartphones/articleshow/57048664.cms>.

<sup>21</sup> For a commercial example, see Unilever's OMO campaign, “Digital Marketing Case Study OMO Uses SMS Campaign to Drive Mobile Loyalty in South Africa,” [http://www.digitaltrainingacademy.com/casestudies/2014/06/omos\\_detergent\\_sms\\_campaign\\_drives\\_mobile\\_loyalty\\_in\\_south\\_africa.php](http://www.digitaltrainingacademy.com/casestudies/2014/06/omos_detergent_sms_campaign_drives_mobile_loyalty_in_south_africa.php).

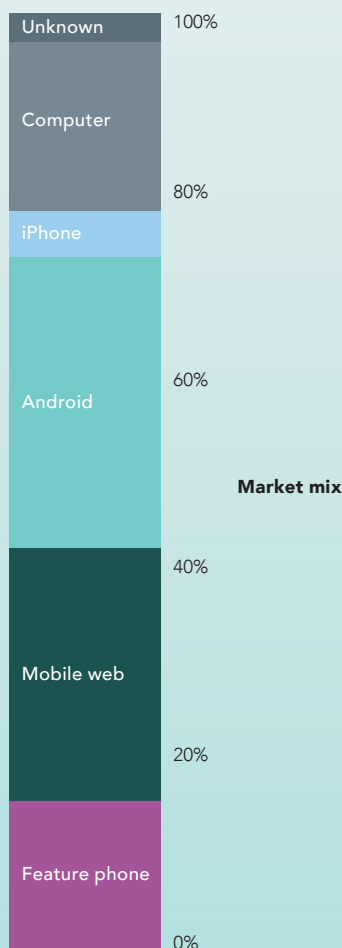


## Part II. Limits to growth: Access and affordability

### continued

**Figure 4**

#### Device types which access Facebook in lower-income countries



Source: Author analysis based on Facebook ad targeting data across 20 low- and middle-income countries

And even for producers who do use Web sites, the lack of JavaScript support means many ad tech services, including Google Display Network, won't function correctly.<sup>22</sup>

Even smartphone users have device constraints: The majority of smartphones in emerging markets are low-end devices, with limited on-board storage capacity, outdated or fragmented versions of the Android operating system, and low-end components such as the wireless modem. Limited device storage is a particularly common challenge, and forces users to limit the number of apps, music, and other content they download or side-load onto the device.<sup>23</sup> So-called "single screen" users only keep a handful of core apps installed at any one time (i.e., not more than can be viewed on a single screen of icons), and instead use the mobile Web for accessing content. This avoids the friction of accessing an app store and installing the app (especially for inexperienced users, and those without an email address to register for the store), but also avoids the data impact of downloading the app and the ongoing app updates that can chew through data in the background.<sup>24</sup>

In order to address the limitations of low-end devices, publishers are continuing to invest in their mobile web presence, even if they also have an app. Successful companies including Flipkart (India), BaBe (Indonesia), Konga (Nigeria), and Alibaba (China) have all invested in next-generation mobile Web sites, "progressive web apps," that emulate native apps in terms of functionality, but use less data and don't require installation from the app store, which improves usage and retention.<sup>25</sup>

Finally, on smartphones and some feature phones, web browsing will most likely be via UC Browser (Asia) or Opera Mini (Africa). Dominant across many emerging markets, these two mobile browsers are popular because they provide a better browsing experience (faster page load times) while saving users money (reduced data usage). Both browsers use proxy servers to compress data and block ads in order to minimize the number of MBs that are actually downloaded; both companies claim users can save over

<sup>22</sup> "The Challenges of Digital Reach in African Markets," *Eskimi*, September 16, 2016, <http://business.eskimi.com/2016/09/16/blog-post-the-challenges-of-digital-reach-in-african-markets-2/>.

<sup>23</sup> Laura de Reynal and Bobby Richter, "Digital Skills Observatory: Stepping into Digital Life" (Mozilla Foundation, 2016), <https://d20x8vt12bnfa2.cloudfront.net/reports/Stepping+Into+Digital+Life+-+Digital+Skills+Observatory+Research+Report.pdf>.

<sup>24</sup> Andreas Bovens and Bruce Lawson, "Progressive Web Apps in Nigeria and Kenya: A Double Interview," *Dev. Opera*, June 16, 2016, <https://dev.opera.com/articles/pwa-nigeria-kenya-interview/>.

<sup>25</sup> Progressive web apps are only supported on Chromium browsers, meaning Chrome, Android default browser, and Opera. For case studies, see: <https://developers.google.com/web/showcase/>.



## Part II. Limits to growth: Access and affordability continued

80% of their typical browsing data.<sup>26</sup> It's important to note that although both browsers now block ads by default,<sup>27</sup> they originally rose in popularity due to their data compression functionality, and it's unclear to what extent ongoing adoption is being driven by the desire to block ads specifically vs. simply reducing overall data consumption and page load time. Both companies partner with operators and OEMs to have their browser pre-loaded on devices, and UC Browser has extended its offering into a content aggregation platform.<sup>28</sup> For more on ad blocking, see page 19.

### Network access

Accessibility and affordability of network connections are the key limitations to increased consumption of digital content and services, and therefore attract much of the investment and innovation by industry actors. When every megabyte is costly,<sup>29</sup> individuals develop a “metered mindset” that is very different from individuals using the typical unlimited post-paid plan that is common in the West.<sup>30</sup> Users with a metered mindset are much more aware of the data they consume, and take steps to minimize or avoid the associated costs.

For example, users with a metered mindset try to minimize data consumption over expensive cellular networks by shifting usage to free Wi-Fi networks. User research by Caribou Digital in Kenya, Uganda, and Ghana showed users consuming more content when at work if their employer had Wi-Fi, or waiting until they were at home and off expensive mobile data plans for heavy data usage.<sup>31</sup> Some advertisers seem to be trying to take such behavior into account—we heard one anecdote about an advertiser in Mexico that would only show its video ads during an extended lunch and siesta hour, when many workers would commonly

**Google claims that people use 15x as much data on the free Wi-Fi as they do over 3G, and that 15,000 people per day are accessing the Internet for the first time through the Wi-Fi service.**

take a break at home where they presumably would have a broadband connection and thus be more likely to watch video ads.

While free Wi-Fi is increasingly common in coffee shops and airports around the world, it's typically much less accessible to poor or rural populations. Google's new initiative, Google Station, looks to fill this need by providing a free high-speed Wi-Fi service to public places, starting with train stations in India.<sup>32</sup> By connecting directly to fiber backhaul laid along transit corridors, Google can offer very high speeds to millions of users without relying on costly mobile infrastructure. Google claims that people use 15x as much data on the free Wi-Fi as they do over 3G, and that 15,000 people per day are accessing the Internet for the first time through the Wi-Fi service.<sup>33</sup> While the company hasn't disclosed specific commercialization plans, there is a clear opportunity to advertise to the five million users per month who pass through its service to access the Internet.<sup>34</sup>

<sup>26</sup> UC Browser: “Save Your Data Usage in Five Easy Steps,” <http://blog.ucweb.com/post/65679127250/save-your-data-usage-in-five-easy-steps.;> Motloung Katleho, “Opera Mini Saves Africans Half a Billion US\$,” November 26, 2015, Opera Mini: <http://www.opera.com/blogs/news/2015/11/opera-mini-saves-african-mobile-internet-users-half-a-billion-us-2/>.

<sup>27</sup> UC Browser started adding ad blocking in 2013, Opera in 2016.

<sup>28</sup> Jason Chernofsky, “Why Emerging Markets Are Dominating Mobile Browsing,” *TNW Conference*, April 2016, [https://thenextweb.com/insider/2016/04/07/first-world-problems-emerging-markets-dominating-mobile-browsing/#.tnw\\_HILJjzZv](https://thenextweb.com/insider/2016/04/07/first-world-problems-emerging-markets-dominating-mobile-browsing/#.tnw_HILJjzZv).

<sup>29</sup> The Alliance for Affordable Internet (A4AI) considers data “affordable” if a 1GB data bundle is priced at 2% or less of average monthly income, a target that most countries are far from meeting; in its 2017 report, just 19 of 58 countries met this minimum benchmark. A4AI, “Affordability Report: Out Today Alliance for Affordable Internet,” *A4AI*, February 21, 2016, <http://a4ai.org/2015-16-a4ai-affordability-report-out-today/>.

<sup>30</sup> Donner, *After Access: Inclusion, Development, and a More Mobile Internet*.

<sup>31</sup> Caribou Digital, “Digital Lives in Ghana, Kenya, and Uganda” (Caribou Digital, 2015), <http://cariboudigital.net/new/wp-content/uploads/2015/12/Caribou-Digital-Digital-Lives-in-Ghana-Kenya-and-Uganda.pdf>.

<sup>32</sup> “Google Station: Fast Wi-Fi for Everyone,” <https://station.google.com/>.

<sup>33</sup> Subhrojit Mallick, “Google Raitel WiFi Has Already Spread to 100 Railway Stations, 300 More Await,” *GIZMODO INDIA*, December 22, 2016, <http://www.gizmodo.in/indiamodo/google-raitel-wifi-has-already-spread-to-100-railway-stations-300-more-await/articleshow/56122351.cms>.

<sup>34</sup> Google is claiming five million users per month with 100 stations active; the plan is to connect 400 stations in India. Users access the Wi-Fi service using their mobile number and a one-time password (OTP).

## Part II. Limits to growth: Access and affordability continued

Mobile operators continue to develop new types of data packages and services to address affordability, including zero-rating certain sites (e.g., Free Basics<sup>35</sup>) and more popular promotional data bundles that offer either unlimited Internet access, or access to only a specific service (e.g., WhatsApp) for a short amount of time, say 24 hours.<sup>36</sup> But some content providers are also paying the operator to zero-rate their own Web site or service. For example, Banco Bradesco in Brazil pays for all traffic on its mobile app to be free to its customers, as increased app usage reduces the likelihood of more expensive phone calls or branch visits.<sup>37</sup> This variation, often called “sponsored content,” is seen by some as less contradictory to net neutrality principles, although the distortive effect on the market may be similar.

Some of the most interesting advertising innovations that address the metered mindset are what we could call sponsored data or “incentivized action” models, whereby the user is incentivized (with free data) to perform some kind of action or engagement with an advertiser’s content. This could be downloading and installing an app, or simply watching a video ad. The most well-known of these is Jana, whose mCent platform has 30 million users across 93 markets. Users of mCent download the app onto their smartphone, and then browse the promotional offers from advertisers. Most offers require the user to download an app and perform some action, such as sending a message or playing a game, after which they are rewarded with free mobile data that they can use however they choose.

Variations of this model of engaging with advertisements in exchange for free mobile data include Gigato (India), Sliide (Nigeria), WowBox (Bangladesh), and BRCK (Kenya). WowBox is a product of Telenor/Grameenphone, and can therefore zero-rate its own data costs so that sponsored content within the app is free to users; by engaging with the promotional content users can then earn free, unrestricted data. Sliide users install the app (a lock-screen news feed) and watch ads to earn unrestricted data, although as an over-the-top service Sliide can’t zero-rate the promotional content within the app. BRCK is employing an agent-based network

model of Wi-Fi hotspots for rural areas. When users want to access the network, they watch advertisements in exchange for free access (early pilots offered 15 minutes of access after watching a 15-second ad).

These examples of sponsored data or incentivized action offer innovative new approaches to mitigating, if not solving, the affordable access constraint. It’s not clear to what extent these services are enabling first-time users, or those who otherwise would not consume online content, but the indications suggest that many users are taking advantage of the subsidized access to supplement the paid access that they sometimes purchase.<sup>38</sup> This may be in part because taking advantage of these programs may require a level of awareness and digital literacy that is uncommon in those who have never used the Internet. We revisit the potential for these sponsored data access models in the Discussion section.

### Relevant content

Even when an Internet-capable device is accessible, and a data bundle affordable, many individuals will be limited in their consumption of digital content and services due to a lack of relevant content in a language they can understand. While all content publishers face obstacles to make digital advertising viable, those in smaller markets face additional challenges.

Chief among these is the relatively low value of the inventory publishers can sell to advertisers. Low demand means that publishers have fewer options for monetizing the inventory on their app or Web site, especially if they aren’t a premier property. That’s because top publishers, with their large audiences and established brands, can make direct deals with advertisers and agencies, earning more lucrative rates and not having to revenue share with ad tech intermediaries. But brands won’t deal with smaller publishers that don’t have substantial audience numbers, leaving them to sell their inventory instead via programmatic exchanges such as Google’s. The programmatic networks are highly efficient and can move inventory that would otherwise be impossible

<sup>35</sup> For a detailed study of Free Basics usage, see LIRNEAsia’s research in Myanmar: Gayani Hurulle, “LIRNEAsia Research on Free and Subsidized Data Use in Myanmar Released LIRNEasia a Regional ICT Policy and Regulation Think Tank Active across the Asia Pacific,” LIRNEasia, March 10, 2017, <http://lirneasia.net/2017/03/lirneasia-research-on-freepromotional-data-offers-in-myanmar-released/>.

<sup>36</sup> A4AI research found that 19% of respondents across eight low-income countries used product-specific plans, vs. 4% using zero-rated platforms such as Free Basics. A4AI, “Measuring Impacts of Mobile Data Service,” June 2016, [http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2016/05/MeasuringImpactsofMobileDataServices\\_ResearchBrief2.pdf](http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2016/05/MeasuringImpactsofMobileDataServices_ResearchBrief2.pdf).

<sup>37</sup> “Sponsored Data: Connecting the Unconnected” (Frost & Sullivan, 2015), [http://digitaltransformation.frost.com/files/3014/4128/9470/FS\\_WP\\_QUALCOMM\\_090215\\_MC-CAM\\_v4.pdf](http://digitaltransformation.frost.com/files/3014/4128/9470/FS_WP_QUALCOMM_090215_MC-CAM_v4.pdf).

<sup>38</sup> For example, multiple studies have shown that most people using Free Basics do so as a complement to paid data plans (e.g., they use Free Basics when they run out of unrestricted data). See LIRNEAsia report on Myanmar: Cihon and Galpaya, “Navigating the Walled Garden: Free and Subsidized Data Use in Myanmar.”

## Part II. Limits to growth: Access and affordability continued

**The programmatic networks are highly efficient and can move inventory that would otherwise be impossible to sell, but publishers get much lower rates for their traffic, and then receive only a fraction of the revenue—as little as \$0.30 on the dollar—after all ad network and other intermediaries take their cut.**

to sell, but publishers get much lower rates for their traffic, and then receive only a fraction of the revenue—as little as \$0.30 on the dollar—after all ad network and other intermediaries take their cut.<sup>39</sup> The question for smaller publishers is whether they can capture a large enough share of a low-value market to survive.

Faced with these economics, some publishers are exploring alternative ad models. Sopitas.com, an independent web publisher in Mexico, creates original content aimed at digitally savvy millennials, using social media to build up its brand and audience (it counts two million followers on Twitter, and was named at one point the most influential Spanish-language Twitter account). After a failed trial monetizing via programmatic ads and Facebook Instant Articles—according to Founder Francisco Alanis, “If Google revenue is minimal, Facebook is almost non-existent”—Sopitas dropped all traditional display advertising and instead built out its own in-house creative team to work directly with brands. The publisher works with large advertisers such as Coca-Cola in promoting special events

and creating sponsored media such as videos that are more engaging for their target audience.

The availability of content in the user’s native language is a key demand-side driver for increasing Internet access for marginalized populations,<sup>40</sup> while localized media can foster inclusion and support democratic institutions.<sup>41</sup> Yet the majority of digital content—including user-generated content such as Wikipedia—is still in English.<sup>42</sup> The economics of content production in minority languages are complicated. By definition, such languages are understood by a relatively small population, meaning there are simply fewer eyeballs to serve ads to. The economics can work in very high-income populations such as Finland, where a population of only 5 million native speakers of the local language can still support small amounts of Finnish content. But in most emerging markets, the populations that use minority languages also tend to be more marginalized economically, resulting in commercial audiences that are both small and poor. However, if minority language publishers can keep their costs of production low enough, and reach an audience large enough, the language barrier can protect their business from the highly competitive global market of English-language publishers.

One result of this need for scale is the emergence of local language content aggregators, which compile content from multiple original sources to display in a single Web site or app. As aggregators, they provide users a more extensive content inventory than any single source, and can take a share of ad revenue across the featured content without having to invest in its production. For example, mobile apps BaBe (Baca Berita) in Indonesia and Tin Moi 24h in Vietnam have become top-ranked apps (1M+ downloads) by aggregating Indonesian- and Vietnamese-language content from a wide range of sources in a classic news feed interface.

Perhaps the biggest success story in this category is Daillyhunt (formerly Newshunt), a news aggregator in India that claims 28 million monthly active users and has raised \$83 million in funding. While it also compiles content from a variety of Indian sources, the main driver of the app’s popularity is that it offers content in at least 12

39 “The Guardian Is Suing Adtech Outfit Rubicon Project for Breach of Contract,” *The Drum*, <http://www.thedrum.com/news/2017/03/28/the-guardian-suing-adtech-outfit-rubicon-project-breach-contract>.

40 Caribou Digital, “Digital Access in Africa,” n.d., <http://cariboudigital.net/new/wp-content/uploads/2015/11/Digital-Access-in-Africa-Caribou-Digital-and-DFID.pdf>; Also see: Surman, Gardner, and Ascher, “Local Content, Smartphones, and Digital Inclusion.”

41 Yusuf Huma and Emrys Schoemaker, “The Media of Pakistan: Fostering Inclusion in a Fragile Democracy?” (BBC Media Action, 2013), [http://downloads.bbc.co.uk/mediaaction/pdf/bbc\\_media\\_action\\_pakistan\\_policy\\_briefing.pdf](http://downloads.bbc.co.uk/mediaaction/pdf/bbc_media_action_pakistan_policy_briefing.pdf).

42 Mark Graham et al., “Uneven Geographies of User-Generated Information: Patterns of Increasing Informational Poverty,” *Annals of the Association of American Geographers* 104, no. 4 (2014): 746–64.

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## Part II. Limits to growth: Access and affordability

### continued

**Vishal Anand, chief product officer, points out that only 10% of the population in India speaks English, and while that segment is growing, large-scale change will take generations—in the meantime, there are hundreds of millions of Indians coming online needing local-language content.**

In this section, we described how the diversity of device and network accessibility constraints results in a more heterogeneous digital audience compared to the typical Western market. Advertisers and publishers have limited reach via smartphone apps, yet face the challenge of ad-blocking browsers on the mobile web. Although audience fragmentation based on device type will continue to be important for the near-term, the more fundamental issue for digital advertising industry is simply the cost of data. Users with a metered mindset will never be the carefree consumers of digital content that advertisers want, so longer-term growth of the industry is tightly tied to affordability of mobile access.

local languages,<sup>43</sup> and is typically the dominant source of digital content in those languages. This is largely because publishers didn't have standard Unicode font support for many of the minor languages, and instead required users to download the appropriate font when visiting their Web site. Dailyhunt engineered a proprietary translation engine that allows its supported languages to be rendered properly on any smartphone or device, instantly opening up the potential user base for the local language publishers. Vishal Anand, chief product officer, points out that only 10% of the population in India speaks English, and while that segment is growing, large-scale change will take generations—in the meantime, there are hundreds of millions of Indians coming online needing local-language content.

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<sup>43</sup> As of early 2017, languages included Hindi, Tamil, Malayalam, Kannada, Telugu, Marathi, Bangla, Gujarati, Urdu, Oriya, Punjabi and English.

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## Part II. Limits to growth: Access and affordability

continued

### Ad blocking

The explosion in user profiling and targeted advertising has led to an arms race in the ad tech sector, as hundreds of firms compete to provide analytics, ad exchanges, remarketing, data management, and other services to as many publisher properties as possible. One result is that Web sites can have scripts from dozens of 3rd-party firms, many of which may have no direct contractual relationship with the publisher.<sup>44</sup> A study by the *New York Times* found that across 50 major news services, more than half of page load time of the mobile Web site was due to advertising scripts and ads themselves; for example, CNN.com took 13.9 seconds to load, 8.6 seconds of which was due to ads.<sup>45</sup>

Ad blockers (mostly) solve this problem, and users worldwide are installing them primarily on desktops, but increasingly on mobile devices: one report by PageFair claims 615 million devices globally (including 380 million mobiles) using ad blockers by the end of 2016, with 136 million of those in India, 106 million of those in China, and 35 million in Indonesia.<sup>46</sup> This kind of scale is hurting publisher revenue, with estimates of global losses due to ad blocking ranging from \$27 billion – \$35 billion a year by 2020.<sup>47</sup> The ongoing losses have spurred publishers to respond in a number of ways, including techniques to conceal the ads or block the ad blockers, all of which has led to an ongoing game of technological cat-and-mouse;<sup>48</sup> while some of the largest advertisers, including Google, Microsoft, and Amazon, have simply paid to be whitelisted.<sup>49</sup> While most of the revenue loss is attributed to Western markets, there is evidence of widespread pain—in mid-2016, 10 of the top online publishers in India banded together for a concerted anti-ad-block campaign.<sup>50</sup>

**The vast majority of the ad block users cited are simply using Opera and UC Browser, and these browsers, became popular in these markets because of their data compression functionality—the specific ad blocking capability for UC Browser didn't come until 2014, and Opera didn't roll out ad blocking until 2016.**

Without specific research on drivers of adoption, the high number of ad block users PageFair cites in India, China, and Indonesia should be viewed carefully—that study essentially counted downloads of mobile browser apps that include ad blocking, most importantly UC Browser and Opera Mini. The vast majority of the ad block users cited are simply using these browsers, and these browsers became popular in these markets because of their data compression functionality—the specific ad blocking capability for UC Browser didn't come until 2014, and Opera didn't roll out ad blocking until 2016.<sup>51</sup> More research is needed to understand to what extent users in these markets recognize the data weight of ads, and actively try to mitigate that data cost and drag on page load time through ad blocking.

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44 This complexity has led to new services designed to help firms understand their internal ad tech landscape; for example, Evidon, <https://www.evidon.com/blog/digital-governance/3rd-party-technologies-whos-who/>.

45 Gregor Aisch, “The Cost of Mobile Ads on 50 News Websites,” *The New York Times*, October 1, 2015, [https://www.nytimes.com/interactive/2015/10/01/business/cost-of-mobile-ads.html?\\_r=0](https://www.nytimes.com/interactive/2015/10/01/business/cost-of-mobile-ads.html?_r=0).

46 “2017 Global Adblock Report.”

47 “Ad Blocking to Cost Publishers \$27bn in Lost Revenues,” [https://www.juniperresearch.com/press/press-releases/ad-blocking-to-cost-publishers-\\$27bn-in-lost-reven](https://www.juniperresearch.com/press/press-releases/ad-blocking-to-cost-publishers-$27bn-in-lost-reven).

48 For example, see: Jack Marshall, “Facebook Will Force Advertising on Ad Blocking Users,” *The Wall Street Journal*, August 9, 2016, <https://www.wsj.com/articles/facebook-will-force-advertising-on-ad-blocking-users-1470751204>.

49 Robert Cookson, “Google, Microsoft and Amazon Pay to Get around Ad Blocking Tool,” February 1, 2015, <https://www.ft.com/content/80a8ce54-a61d-11e4-9bd3-00144feab7de#axzz3QbumsIf6>.

50 Anuj Srivas, “All Eyeballs on Reader Reaction as Ad Blocking War Comes to India,” *The Wire*, June 30, 2016, <https://thewire.in/47488/all-eyeballs-on-reader-reaction-as-ad-blocking-war-comes-to-india/>.

51 “UC Browser for Android Comes with Preloaded Adblock and Other New Features,” <http://www.ucweb.com/a/ppress/2014/0819/3816.html>.

## **Part III**

Facebook and the costs of  
global reach: A case study



## Part III. Facebook and the costs of global reach: A case study

In Part I, we described the current state of the digital advertising industry in emerging markets, highlighting the dramatic differences in revenue and monetization rates compared to developed markets. Part II explained why demand in these markets is so low, focusing on how constrained digital repertoires limit the ways in which individuals engage with digital content and thus advertisements. To frame these arguments together, we explore here in Part III the case of Facebook, using what we know of its business to illustrate both the enormous potential but also the challenges for ad-based revenue models in these markets.<sup>52</sup>

### Diverse products extend reach—and costs

Facebook is one of the most popular online services worldwide, and remains a strong incentive for first-time users in emerging markets to purchase a smartphone and get online.<sup>53</sup> Operators around the world capitalize on its popularity via promotional data bundles or zero-rated service specifically for Facebook, to the point where some users conflate the service with the actual Internet.<sup>54</sup>

But the accessibility and affordability constraints in emerging markets create challenges for the firm's ability to monetize this popularity. While the majority of users in the developed markets use Facebook's standard iOS/Android smartphone apps and Web site, individuals in lower-income markets are much more likely to use feature phones and low-end Android devices, which have limitations in displaying rich media and processing advertising code. Metered mindset individuals adopt coping strategies to mitigate the high cost of data and unreliable network availability, yet the

end result is still limited frequency and intensity of use, and thus monetization. Figure 5 shows the mix of device types accessing Facebook products across a range of countries, highlighting the much higher prevalence of feature phones, and lower prevalence of computers and iOS, in the lowest per-capita income countries.

Facebook has made efforts to focus on these challenges,<sup>55</sup> and has invested significant resources in developing solutions to mitigate them. Starting in 2010, the company launched Facebook Zero, a limited, text-only version of the product that operators in over 50 countries were willing to zero-rate. In 2011 Facebook purchased Israeli firm Snaptu for \$70 million, using its technology to create a Java version of its app—called Facebook for Every Phone (F4EP)—that could run on more than 3,000 different feature phone handsets with a user experience that approximates the smartphone app, yet is much smaller and data efficient.<sup>56</sup> Then in 2015, acknowledging the proliferation of low-end smartphones with lower levels of functionality and performance, Facebook released a streamlined version of its Android app, called Facebook Lite, which reduced the size of the application download (APK) and data consumption, primarily via a server-based architecture.<sup>57</sup> And then in 2015, the company launched its Free Basics platform, which partners with mobile operators in 37 countries to offer zero-rated access to Facebook and other Web sites. Some mobile operators support Facebook Flex, which offers a button to allow users to toggle back and forth between paid and free (zero-rated) versions of the app. And while not part of its core product, it's worth noting that Facebook has also developed a stripped-down version of its Messenger app, Messenger Lite, that eliminates bandwidth-heavy features such as Messenger Day and camera features.<sup>58</sup>

<sup>52</sup> We use Facebook because it is one of the largest platforms, but also because its public information disclosures and external ad tool offer superior visibility into its operations compared to other firms.

<sup>53</sup> de Reynal and Richter, "Digital Skills Observatory: Stepping into Digital Life."

<sup>54</sup> Leo Mirani, "Millions of Facebook Users Have No Idea They're Using the Internet," *Quartz*, <https://qz.com/333313/millions-of-facebook-users-have-no-idea-theyre-using-the-internet/>.

<sup>55</sup> For example, the company started "2G Tuesdays" where employees at the Menlo Park headquarters would experience 2G network speeds one day a week. Critics point out that the experience is opt-in, and only lasts for an hour. <http://www.theverge.com/2015/10/28/9625062/facebook-2g-tuesdays-slow-internet-developing-world>.

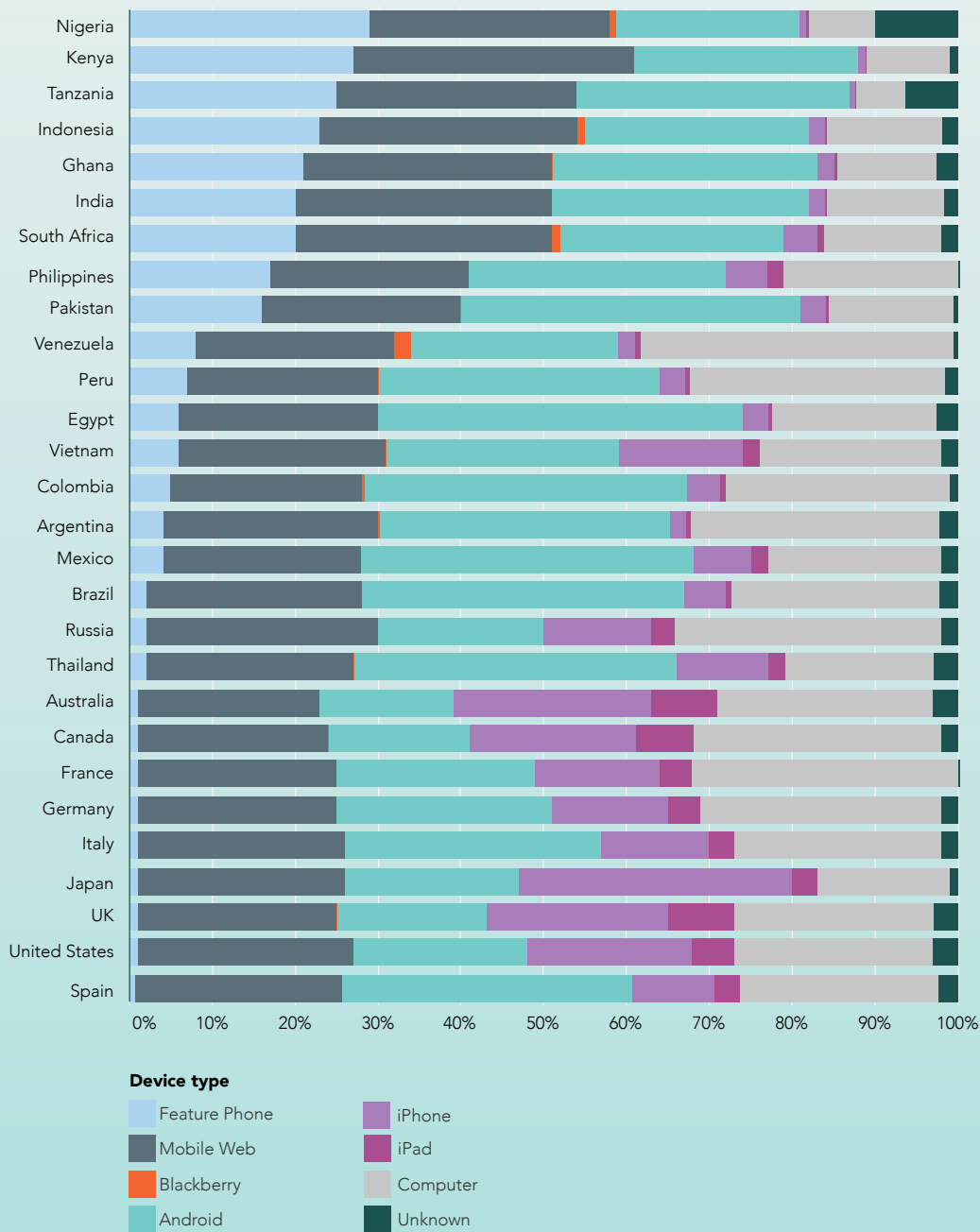
<sup>56</sup> Vindu Goel, "For Developing World, a Streamlined Facebook," *The New York Times*, July 21, 2013, <http://www.nytimes.com/2013/07/22/technology/for-developing-world-a-lightweight-facebook.html>.

<sup>57</sup> Gautam Roy, "How We Built Facebook Lite for Every Android Phone and Network," Code.Facebook, <https://code.facebook.com/posts/1365439333482197/how-we-built-facebook-lite-for-every-android-phone-and-network/>.

<sup>58</sup> "Facebook Sidesteps Snapchat by Launching Messenger Lite in over 100 More Countries | TechCrunch," <https://techcrunch.com/2017/04/27/facebook-sidesteps-snapchat-by-launching-messenger-lite-in-150-more-countries/>.

## Part III. Facebook and the costs of global reach: A case study continued

**Figure 5** Mix of device types accessing Facebook, selected countries



Source: Facebook ad manager tool



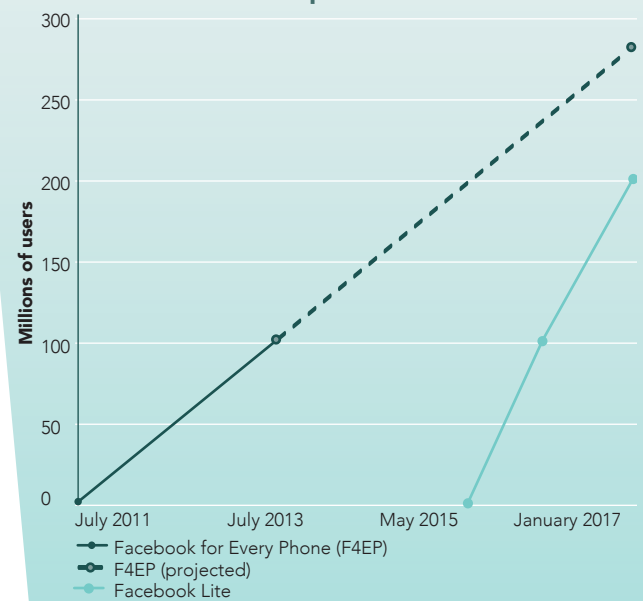
## Part III. Facebook and the costs of global reach: A case study continued

While Facebook has invested significant resources in facilitating access to its service for the broadest possible range of users, the different apps/services have different limitations for serving ads, and therefore monetization potential. In order to mitigate net neutrality and other criticisms, the Free Basics version of Facebook doesn't serve any ads at all. Facebook for Every Phone didn't serve ads for years, and even now serves primarily text-based ads. Even Facebook Lite, which runs on low-end smartphones, shows text and low-resolution image ads. Neither version allows video ads, which is the platform's most lucrative ad format. The rudimentary user interfaces also limit the quantity of ads being served, which has been a core driver of Facebook's revenue growth for years—in just 2016 alone, the company increased the number of ads delivered by 50%, while price per ad only grew 5%.<sup>59</sup>

In addition to producing limited revenue, the multiple versions of the app also increase the company's costs. Some resources can be shared across the different products, but most of the versions probably have their own dedicated development teams and separate code bases. And because the Facebook for Every Phone (F4EP) version and the Android Lite version both rely on a sophisticated Facebook proxy server architecture designed to off-load processing and storage functions from the device to the cloud, the operating costs for those users could be relatively higher.<sup>60</sup>

**The rudimentary user interfaces also limit the quantity of ads being served, which has been a core driver of Facebook's revenue growth for years—in just 2016 alone, the company increased the number of ads delivered by 50%, while price per ad only grew 5%.**

**Figure 6** Adoption curves of alternative Facebook products



Source: Facebook announcements, Facebook F4EP page

<sup>59</sup> Facebook 10-K, 2016, p.41.

<sup>60</sup> Roy, "How We Built Facebook Lite for Every Android Phone and Network."

## Part III. Facebook and the costs of global reach: A case study continued

**Figure 7 Facebook product versions**

Product version	Designed for
Desktop Web site	Desktop/Laptop computers (web)
iOS app	iPhones, iPads (app)
Android app	Android smartphones (app)
Android Lite	Low-end Android smartphones (app)
Mobile Web site	Any web-enabled mobile phone (web)
Facebook for Every Phone	Feature phones (Java-based)
Facebook Flex	Feature phones, Android (web or app)
Facebook Zero	Feature phones (web-based)

Source: Author compilation

The popularity, and limitations, of many of Facebook’s alternative product versions sheds some light on the company’s official ARPUs in the Asia-Pacific and Rest of World regions. Our calculations estimate at least 400 million users across Africa, Latin America, and South Asia are using F4EP or Android Lite.<sup>61</sup> That means more than one-third of Facebook’s MAU user base in those regions is seeing limited, lower-revenue ads, with less frequency, all of which bring down the CPC/CPMs, and helps explain the lower ARPUs for these regions.

In summary, Facebook has invested heavily, and quite successfully, in extending its core product to the widest range of users possible in emerging markets. While these users will consume much less content, and therefore represent a lower bandwidth and hosting cost burden compared to North American users, they also cost more due to the requirements of server-side processing of the Java-based and Android Lite versions. Most importantly, reaching these audiences requires multiple products with varying capabilities, diminishing economies of scale, and raising the company’s costs to serve its lowest-revenue users.

### Designed for

Desktop/Laptop computers (web)
iPhones, iPads (app)
Android smartphones (app)
Low-end Android smartphones (app)
Any web-enabled mobile phone (web)
Feature phones (Java-based)
Feature phones, Android (web or app)
Feature phones (web-based)

### A global platform, but a Western business

To get a better sense of the economic geography of Facebook’s business, we conducted an analysis to estimate ARPU and revenue figures beyond just the regional numbers that the company announces publicly—clearly Japan and India, both of which are lumped into the Asia-Pacific region in the company’s categorization, don’t have the same ARPU of \$2.07.

We start the analysis by testing the correlation between country-level economic activity and advertising industry revenues described in the literature.<sup>62</sup> Using Facebook’s advertising platform, we ran a small study to compare CPC (cost-per-click) rates across a range of select markets. CPC rates from Facebook’s ad tool, like other auction-based ad bidding systems, reflect the demand by advertisers for the specific audience and inventory—when more advertisers are trying to target the same audience, the price to do so goes up accordingly—and are therefore a proxy for per-user revenue potential.<sup>63</sup>

<sup>61</sup> Facebook announced in July 2013 that F4EP had reached 100 million users, and based on its fan page, we estimate it has at least 200 million in 2017 (users are encouraged to “like” the fan page when downloading the app; public numbers from the company show the number of “Likes” (currently ~500 million) have historically been roughly 100% to 130% higher than the actual number of users). Per the company, Facebook Lite has already reached 200 million users in less than two years, while Free Basics has a reported 25 million users.

<sup>62</sup> Byeng-Hee Chang and Sylvia M. Chan-Olmsted, “Relative Constancy of Advertising Spending: A Cross-National Examination of Advertising Expenditures and Their Determinants,” *Gazette (Leiden, Netherlands)* 67, no. 4 (2005): 339–57.

<sup>63</sup> While many variables affect the effective CPC rate, including quality of the ad, language used, and bidding strategy, the relative difference in CPC reflects overall demand in these markets.

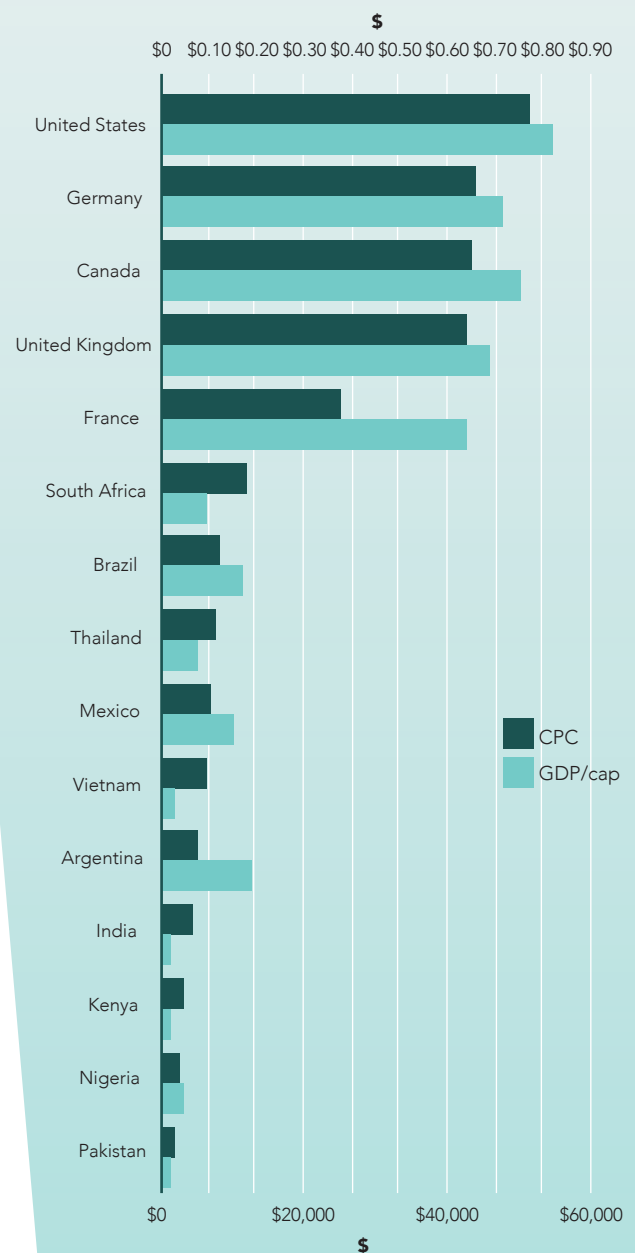
## Part III. Facebook and the costs of global reach: A case study continued

We placed the same ad in each country, always selecting the entire country population as the intended audience (no other targeting). The price we paid ranged from \$0.03 CPC in Pakistan and \$0.04 in Nigeria to \$0.77 in the U.S. (Figure 8), reflecting substantially less demand in the lowest markets compared to developed markets. As expected, the CPC rates correlated strongly with GDP per capita, reinforcing the idea that wealthier audiences are more desirable to advertisers.

Next, in order to calculate the country-level revenues (Figure 9), we used data from Facebook’s internal ad tool and its publicly disclosed statements, and weighted each by GDP per capita. This allowed us to derive estimates for 94 countries worldwide, including all countries with a population greater than 20 million (except for China, where Facebook is blocked).<sup>64</sup>

The outsized role of the U.S.—roughly 50% of all revenue and an order of magnitude more than any other market—is striking, if unsurprising. This is in part because Facebook’s home market continues to have the single largest number of users, but also because Facebook has been able to dramatically increase the ARPU for those users over time, reaching \$19.81 per quarter by the end of 2016. While all regions show ARPU growth, the North America region has risen at almost double the rate as the Rest of World category (Africa and Latin America), 583% vs. 281% (Figure 10). Therefore despite the increase in the user base in emerging markets, the imbalance in revenue allocation has been growing, not shrinking. While Facebook, like all software platforms, enjoys economies of scale, its operating costs are still a function of the user base it supports. Over the last six years, its quarterly cost of revenue has doubled from about \$0.25/user to about \$0.56/user, while user growth globally has almost tripled.<sup>65</sup> Without more details about its cost structure we can’t allocate those costs regionally, but as Figure 11 shows, the majority of user growth in this time period has been in emerging markets, while North America and Europe have seen relatively modest gains.

**Figure 8** CPC rates and GDP/cap across select countries



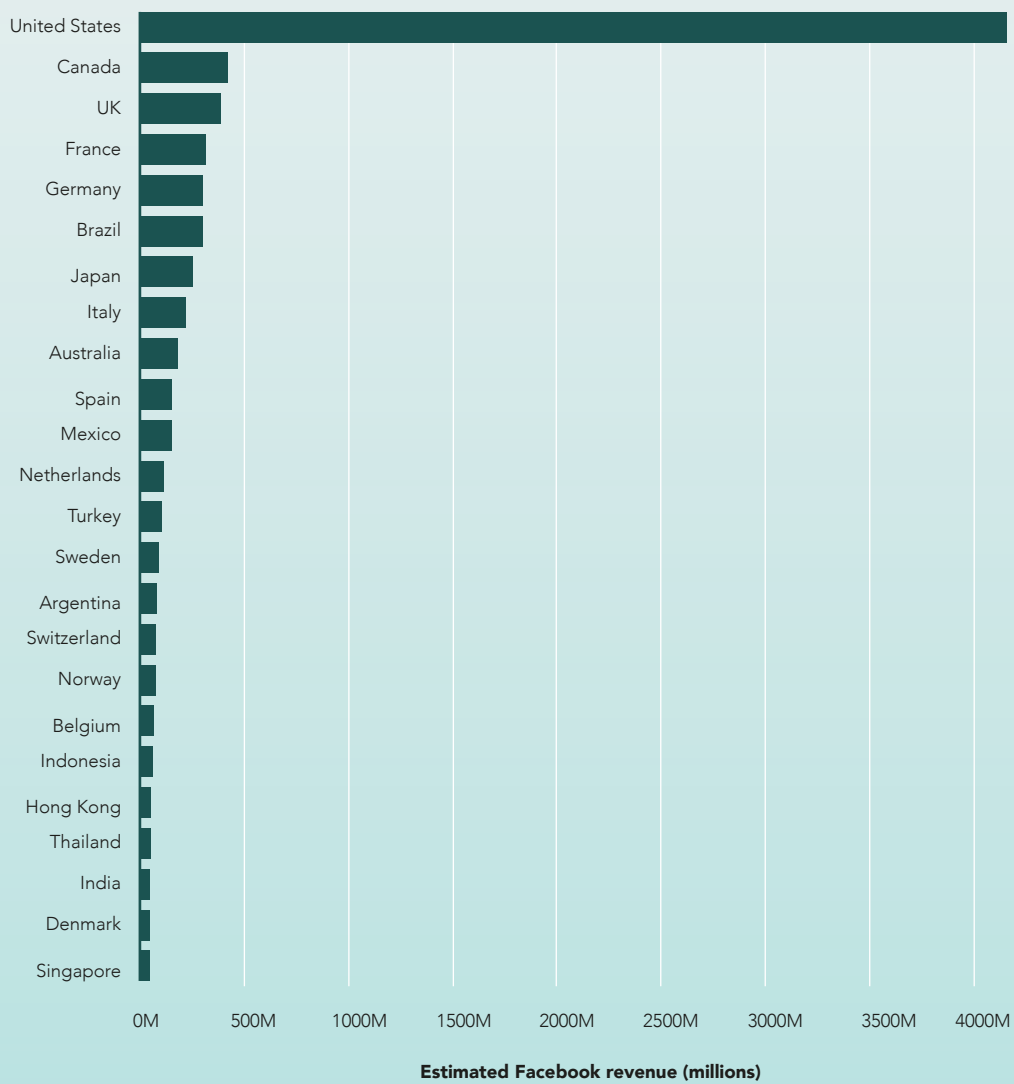
Source: Author’s analysis

<sup>64</sup> Estimated ARPUs are based on regional ARPUs reported by Facebook (Q42016) weighted according to each market’s GDP per capita; MAUs estimated as the average of the stated range within Facebook’s internal ad tool as of August 2016. In Facebook’s public reporting, MAUs include Facebook and Messenger, but not WhatsApp or Instagram; ARPU includes Instagram.

<sup>65</sup> Facebook filings.

## Part III. Facebook and the costs of global reach: A case study continued

**Figure 9** Estimated revenues, select markets



Source: Author's analysis

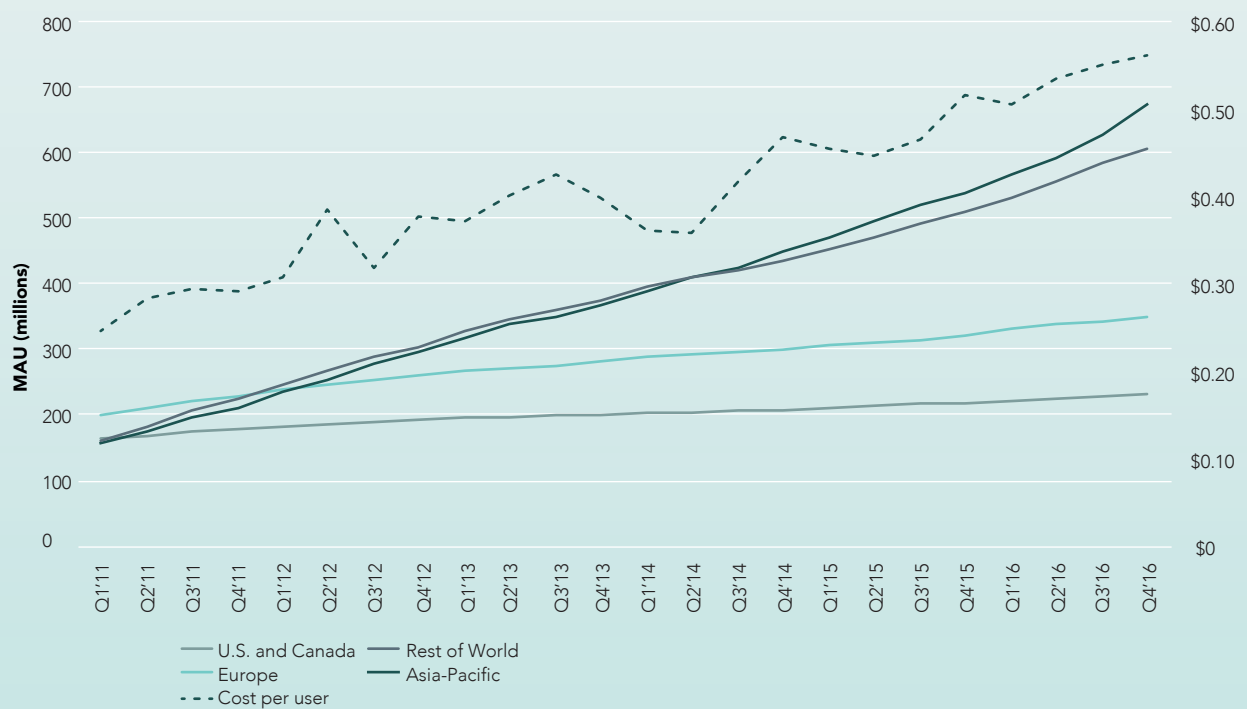
## Part III. Facebook and the costs of global reach: A case study continued

**Figure 10 Growth in ARPU by region**

Source: Facebook filings

Region	5 year ('12—'16)	1 year ('16)	Q4'16 ARPU
US and Canada	583%	45%	\$19.81
Europe	327%	31%	\$5.98
Asia-Pacific	291%	29%	\$2.07
Rest of World	281%	28%	\$1.41

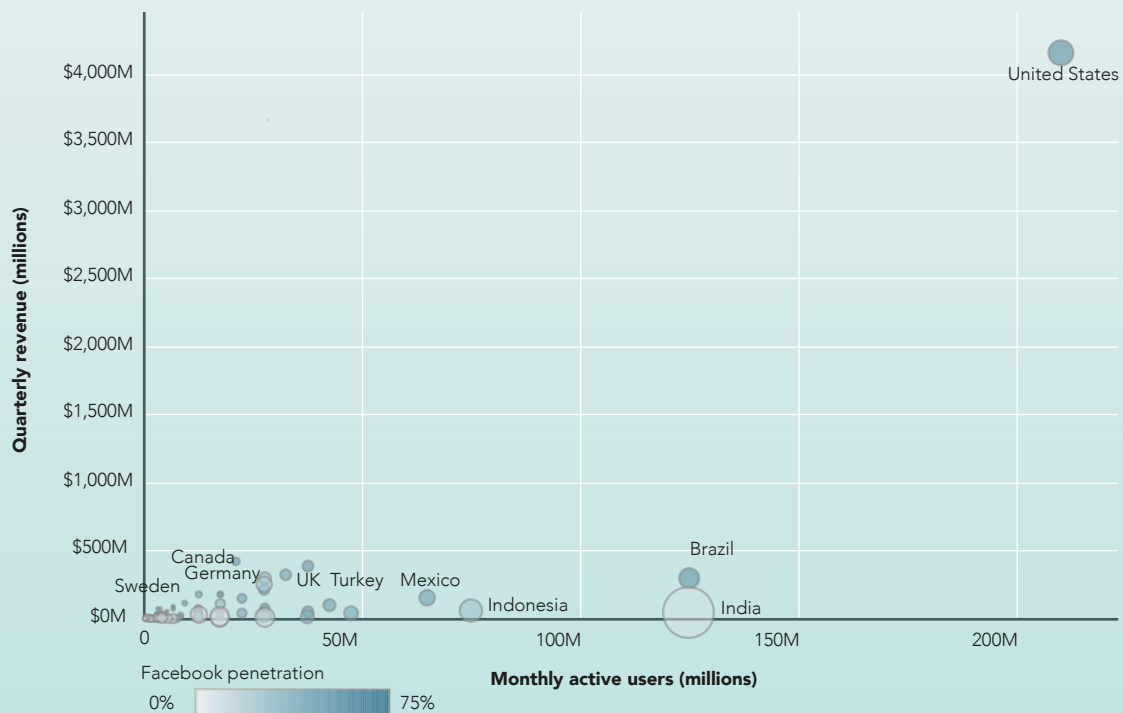
**Figure 11 Facebook MAU and operating cost per user, 2011—2016**



Source: Facebook filings

## Part III. Facebook and the costs of global reach: A case study continued

**Figure 12 Facebook estimated revenue, MAU, and market penetration (bubble size = population)**



Source: Authors' analysis

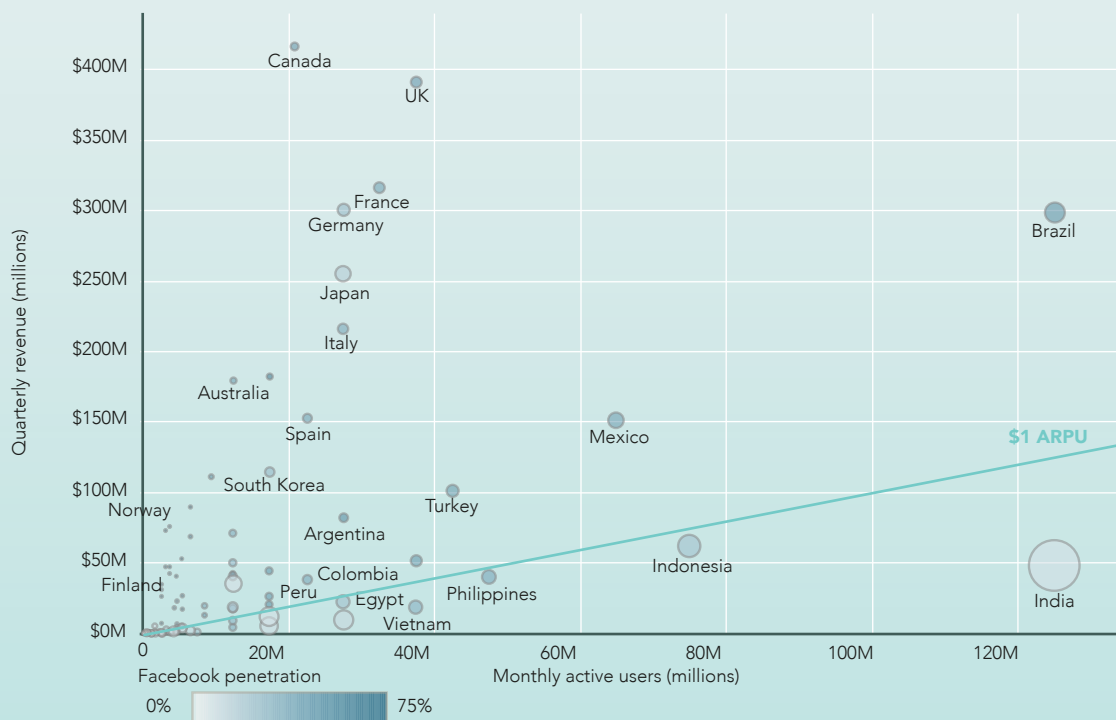
### Snapshot of profitability

Therefore while an imperfect measure, we use MAUs as a proxy for operating costs for the company, and plot these against revenue and penetration (Facebook users/population) to provide a simplified view of Facebook's profitability potential across different markets (Figure 12). The outsized role of the U.S. is immediately clear, as well as the highly saturated nature of some markets, notably U.S. and Brazil (69% and 60% penetration, respectively).

If we exclude the U.S. from the chart, we can see in better detail the main cluster of markets (Figure 13). The challenge for Facebook is those countries that are down and to the right—lots of users, but little revenue. India, Indonesia, Philippines, Vietnam, Bangladesh, Nigeria, and others have millions of users—an estimated 125 million in India alone—but total revenues are relatively low. Without actual cost information we can't know with certainty which markets are or are not profitable, or how the company's global cost of revenue of \$0.56 per user is distributed on a market by market basis. But somewhere in this chart there

### Part III. Facebook and the costs of global reach: A case study continued

**Figure 13 Facebook estimated revenue, MAU, and market penetration (excluding U.S.) (bubble size = population)**



Source: Authors' analysis

is a positively sloping line that divides the profitable (above the line) from the unprofitable (below the line), and it seems probable that many of the small emerging markets are currently below that line.

Facebook can afford to enter unprofitable markets because it has global scale and the ability to cross-subsidize those efforts with its more lucrative users elsewhere; even if it is losing money in India, the tremendous profits it earns in the U.S. can be applied to its Indian operations until the market grows enough to become sustaining. This is a competitive advantage that Facebook holds over local players or any competitors which don't have strong businesses in higher-revenue markets. A less direct consequence of this

may be a level of market conditioning to free content and services (e.g., payments within Messenger) that hinders the adoption of alternative services. If Facebook products are free— that is, ad-supported—in order to compete. In low-revenue ad markets, this makes it very difficult for other products and services that don't have ad revenue flows from Western consumers to offset their costs and reach profitability.

# **Part IV**

## Implications and discussion



## Part IV. Implications and discussion

As the Facebook case study shows, there are serious challenges to building a business supported by digital advertising in emerging markets. People with limited disposable income are simply less valuable to advertisers. And constrained digital repertoires mean their consumption of online content and services is less frequent, deep, and media-rich than Western users, meaning even when advertisers can connect with audiences, those engagements are lower-value. In this final section we explore what this means for how digital advertising may evolve in emerging markets, focusing on the role of advertising in three areas: the content market, Internet access, and personal data.

### The content market loses its middle

The expanding role of Facebook and other platforms over how people discover, consume, and share content is making it increasingly hard for publishers to earn enough revenue to support traditional production. In this new order, content has become atomized, where each individual piece is detached from its brand and instead must fight for visibility (and clicks) in the news feeds and search algorithms that increasingly dictate what is seen digitally.<sup>66</sup>

This is a global phenomenon, but the low ad rates in emerging markets mean publishers there face even tougher economics. Elite or premium publishers can mitigate this to a certain extent, as they have the scale and brand value that can attract the highest-revenue direct deals with advertisers. On the other hand, smaller and less-recognized publishers have to compete against all others on the programmatic exchanges, where high-efficiency auction bidding drives

down the price of any undifferentiated inventory to the lowest level possible.<sup>67</sup>

One area of hope for smaller and independent producers is in local language content, which offers a natural niche protected from the global mainstream media. While the language barrier can insulate a market from entry from global providers, the population must be large enough and wealthy enough to support an ad-based business; many minority language populations are simply too small and too poor to attract investment.<sup>68</sup>

The Indian market is perhaps the best example of a thriving local language content industry. It's one of the only markets where print media are still growing (as of 2015, almost 15,000 registered newspapers and 90,000 periodicals), especially across Tier II and Tier III cities (i.e. below 100,000 population). And the majority of that growth in circulation is being driven by local language media: 87% are in a local language (about half in Hindi) and only 13% are in English.<sup>69</sup> The sheer size of the Indian population means that even minority languages have large speaking populations, with at least 10 different languages of at least 30 million speakers. The content aggregator Dailyhunt (described in Part II) currently features content in all of those languages, plus Punjabi and English. Dailyhunt only hosts content already written and produced by others—it doesn't translate or produce original content—but its model suggests that there is some threshold, perhaps around 30 million speakers, below which there is not enough scale to support a thriving local content industry.

Apart from the numbers, there are other factors that affect the viability of ad-supported content for local languages. Dailyhunt's Chief Product Officer Vishal Anand says that while English-language ads used to be the most lucrative, they now see local language ads outperform them, often posting 3x the click-through rates of English ads. Research by Google has shown that audiences in India trust minority language content more than that in English,<sup>70</sup> while a study

66 Zachary M. Seward, "The Homepage Is Dead, and the Social Web Has Won Even at the New York Times," *QUARTZ MEDIA*, May 15, 2014, <https://qz.com/209950/the-homepage-is-dead-and-the-social-web-has-won-even-at-the-new-york-times/>.

67 And differentiation is hard. Reuters found that in some markets, only 25-33% of readers notice the brand behind the article when posted in an aggregator. "The Challenging New Economics of Journalism - Reuters Institute Digital News Report," <http://www.digitalnewsreport.org/essays/2016/the-challenging-new-economics-of-journalism/>.

68 Previous research by Caribou Digital showed that in the global app economy, some of the most successful domestic markets for app production were in countries with large populations and distinct, if not unique, languages, including Vietnam, Thailand, and Turkey. "Winners and Losers in the Global App Economy."

69 Zeenab Aneez et al., "Indian Newspapers Digital Transition: Dainik Jagran, Hindustan Times, and Malayala Manorama," December 2016, <http://reutersinstitute.politics.ox.ac.uk/sites/default/files/Indian%20Newspapers%27%20Digital%20Transition.pdf>.

70 "Indian Languages: Defining India's Internet" (KPMG and Google, 2017), <https://assets.kpmg.com/content/dam/kpmg/in/pdf/2017/04/Indian-languages-Defining-Indias-Internet.pdf>.

## Part IV. Implications and discussion continued

**In publishing, we will see a bifurcation in quality, characterized by paid, high-quality content from premium publishers, and a long tail of ad-supported junk food that offers little of substance.**

by Reuters has shown that people in countries with smaller local language populations are about twice as likely to pay for news compared to people consuming English-language news.<sup>71</sup>

Even many premium publishers are trying to move beyond a reliance on ad revenue alone, by diversifying into hybrid subscription models or “paywalls” that allow some amount of free content beyond which the user must pay for access. The result is that high-quality content will increasingly be accessible only to those who can afford the subscription/access price, while lower-quality content (which is cheaper to produce, especially if computer-generated<sup>72</sup>) will be increasingly reliant on sensationalism and other proven “click-bait” tactics (e.g., lists) in order to attract eyeballs in a furiously competitive global environment.

In this way digital content will become like food: The highest-quality, healthiest food is often quite expensive and only accessible to the wealthy, while low-quality food is scientifically engineered to be cheap, addictive, and marketed to the poor. In publishing, we will see a bifurcation in quality, characterized by paid, high-quality content from premium publishers, and a long tail of ad-supported junk food that offers little of substance. This is a global phenomenon, but for resource-constrained users in emerging markets, paying for access to content, on top of

paying for data, only makes the entire enterprise that much less affordable.

### Ads won't solve access

In the traditional model of display advertising, the ads subsidize the production and distribution of the content, creating a “free” resource for the audience. But when the audience can't afford the devices or data to access content, the model breaks down. We described in Part II how operators in emerging markets are offering one solution to the access problem by subsidizing access to specific services (zero-rating) such as Facebook.

More relevant to our inquiry is the sponsored data model, where the end-user is provided with free and unrestricted data in exchange for some type of incentivized action of engaging with sponsors' advertisements. The growth of Jana's mCent platform suggests that advertisers are willing to pay enough for those users' attention to cover the costs of free data. But most of the mCent advertisers are app developers running app install ads—they are incentivizing users to download and install their app because that boosts their install numbers in the app store, which helps their apps rise in the charts (e.g., “Top new apps”) and thus attract more attention and downloads in a virtuous cycle.

This strategic gaming of the app stores isn't new, and takes place across all ad platforms; one analyst estimates that app install ads make up a full half of Facebook's ad revenues,<sup>73</sup> while Opera has stated they make up one third of its ad revenues.<sup>74</sup> But all of this spending is being fueled primarily by app developers with VC funding,<sup>75</sup> who are spending huge sums on app install ads in what is a speculative race to become a mega-hit in the winner-take-all app economy.<sup>76</sup> Apart from app installs, it's unclear if the economics are there for traditional display advertising. While an app developer might be willing to pay \$1 or more per user for the install, advertisers running awareness campaigns certainly won't pay anywhere near as much, even if it's a long-form (e.g., 30 seconds) video that must be watched to completion.

<sup>71</sup> Mark Thompson, “The Challenging New Economics of Journalism,” <http://www.digitalnewsreport.org/essays/2016/the-challenging-new-economics-of-journalism/>.

<sup>72</sup> Klint Finley, “This News Writing Bot Is Now Free for Everyone,” *WIRED*, October 20, 2015, <https://www.wired.com/2015/10/this-news-writing-bot-is-now-free-for-everyone/>.

<sup>73</sup> Robert D. Hof, “App Ads Are Booming Business for Facebook,” *MIT Technology Review*, February 27, 2015, <https://www.technologyreview.com/s/535431/app-ads-are-booming-business-for-facebook/>.

<sup>74</sup> Garrett Sloane, “Why the Mobile Ad Market Is so Dependent on App Installs for Growth,” *DIGIDAY*, November 10, 2015, <http://digiday.com/media/mobile-ad-market-dependent-app-installs-growth/>.

<sup>75</sup> <http://digiday.com/media/mobile-ad-market-dependent-app-installs-growth/>.

<sup>76</sup> “Winners and Losers in the Global App Economy.”

## Part IV. Implications and discussion continued

While not currently operating in emerging markets, Australian startup Unlocked offers some clues to the economics at play. It's partnering with U.S. operator Boost Mobile (part of Sprint) to reward users with a \$5 discount off their pre-paid smartphone plan in exchange for watching ads on their Android lock screen; every few times the phone is unlocked, the user will see an ad, maxing out at 40-50 ads per day.<sup>77</sup> Those numbers mean the user views and actively dismisses (or clicks through) 1,500 ads per month for the \$5 discount. Without knowing the level of targeting or type of ad it's difficult to compare this to other CPM or CPC rates, but we can assume that the relative value of a similar program in an emerging market would be an order of magnitude lower, that is, 1,500 ads would drive about \$0.50 in value that could then be applied to the data reward or discount. If mobile data is \$5 per GB, that \$0.50 would only provide about 100MB of data per month.

It's important here to note that the economics of ad-supported access depend on the form of backhaul being used. Cellular networks obviously have the broadest coverage, but are expensive. Wi-Fi hotspots or other last-mile connectivity that connects into fiber backhaul can provide access at much lower costs.<sup>78</sup> The Google Station project started at railway stations in India in part because the access points could easily connect into the main fiber trunk lines along the railway, allowing for very high-bandwidth access. Wifi Dabba, also in India, is building a network of Wi-Fi hotspots at tea stalls and other micro-businesses where customers can purchase a la carte data; because it uses 100MB fiber backhaul it can charge low prices of only \$0.03 for 100MB, or \$0.30 for 1GB.<sup>79</sup> It is a paid model, but at those prices it seems feasible to be ad-supported. In South Africa, community Wi-Fi provider Project Isizwe also uses high-speed fiber to connect its hot spots, and with government support was able to offer 500MB per person per day free. After a shift in government priorities left them without core funding, they are now looking to pivot to an ad-based model, which they believe is viable given the targeting offered by their data profiling and segmentation of users.

Access and affordability constraints in emerging markets demand new innovations from the market, as the content subsidy model alone is insufficient. The high cost of mobile data and low value of ad inventory makes ad-supported mobile data a tough road without significant reductions in data costs. But ad-supported access models that use cheaper backhaul such as fiber seem viable, and hybrid models or those like BRCK that use cached content to offset data and bandwidth costs could be one part of the puzzle for building a more robust ecosystem of digital content and services.

### New models for personal data

Facebook and Google have deep and broad data profiles on users, both from their own products and from buying and integrating data from other providers (including, for example, other services that use their identity credentials, as well as offline purchase behavior). They couple these vast databases with sophisticated advertising platforms to offer powerful, easy-to-use segmentation and targeting tools that are simply unparalleled in the industry in their reach and sophistication. Data profiling and ad targeting is so effective that it has become table stakes for publishers or supply side platforms, and is the technology engine that is continuing to drive up ad rates despite the explosion in inventory. This is why these companies are so powerful.

But in emerging markets, people have much smaller digital footprints, both in terms of actively created data (e.g., posting photos) as well as passive data collection (e.g., browsing and search history, purchases). Facebook is still the major source for data profiles, yet constrained digital repertoires limit how and to what extent people engage with the product, and thus what data it can collect on users. Google collects search history, but limited online purchases lower search ad value, usage of Gmail and other related services is much lower, and many devices are running open source Android and thus don't tie back to a single Google account. It's also common for emerging market users to create multiple or successive social media or email accounts—sometimes intentionally, sometimes simply because it's easier than recovering lost credentials, sometimes because the person they purchased the device from set it up with random account information that the new owner will never use<sup>80</sup>—which fragments profile activity and further dilutes the value of the data to advertisers.

<sup>77</sup> Olga Kharif, "Would You Watch Ads for a Cheaper Cellphone Bill?," *The Detroit News*, August 28, 2016, <http://www.detroitnews.com/story/tech/2016/08/28/watch-ads-cheaper-cellphone-bill/89515850/>.

<sup>78</sup> Caribou Digital, "Closing the Access Gap," n.d., <https://www.usaid.gov/sites/default/files/documents/15396/Closing-the-Access-Gap.pdf>.

<sup>79</sup> <https://venturebeat.com/2017/03/03/wifi-dabba-wants-to-help-stores-in-india-provide-low-cost-internet-access/>.

<sup>80</sup> de Reynal and Richter, "Digital Skills Observatory: Stepping into Digital Life."

## Part IV. Implications and discussion continued

This lack of robust data profiling presents a significant barrier to ad industry growth, and also an opportunity for other actors to provide value with better personal data. The mobile operators, in particular, seem well-positioned to take advantage of the data gap. By owning the customer relationship, the operators have accurate data on demographics, payment history, activity, and location, all of which can be used to compile robust profiles that can be sold to advertisers. Telefonica has taken the lead in this regard, launching its own programmatic exchange, Axonix, in 2014, and in early 2017 expanded its capabilities by acquiring geo-location firm Statiq. Firms such as Smartpipe Solutions and Zeotap are working with operators in markets like India and Indonesia to build up internal capacity for packaging existing customer data into anonymous data products that can be sold directly to advertisers or integrated with external ad networks.

However, previous attempts to harmonize mobile operator data across mobile networks—essential to present a viable alternative to Facebook and Google’s scale—have failed. The GSMA, the global trade and standards association for the mobile industry, attempted to solve this with a Mobile Media Metrics product that re-inserted mobile operators into the advertising revenue stream. Despite launching in the U.K. in 2010,<sup>81</sup> the platform failed to get comprehensive mobile operator support globally, and was eventually divested to the audience measurement company ComScore.

The ongoing difficulty of mobile operators to monetize their user data for advertising has led them to adopt preventative measures such as network-level ad blocking, ostensibly to protect user data consumption, but in reality to exert control over how their data networks transport digital advertising and, frustratingly for the operators, line the pockets of Facebook and Google. The Israeli company Rainbow<sup>82</sup>—previously profiled under its former name Shine in a previous Caribou Digital report on Digital Access in Africa<sup>83</sup>—is the leading vendor of this solution for mobile operators.

In many ways, the locus of valuable user data signals the presence of power within the ecosystem, and over time that has shifted from the access providers (AOL’s walled garden) to publishers (Web site owners used to know the most about their audience) up to the platforms of Facebook and Google. The ability of access providers to claw back some of that power—to expand their role beyond “dumb pipes” into higher value products and services—will depend in large part on their ability to leverage and differentiate the first-party user data they possess.<sup>84</sup>

In the developed markets, it will be difficult to compete with Facebook and Google, but operators in emerging markets may have a much better opportunity given the relatively limited data that the Internet giants can currently collect.

Of course, there are other industries besides advertising that draw significant value from compiling data to profile users—especially financial services. In the West, long-running metrics such as FICO-based credit scores have been used as a standard measure to deliver a wide range of financial products and services. In emerging markets, where “thin file” consumers have little in the way of credit history or even formal documentation, financial firms are exploring alternative data sources such as mobile phone records and social media profiles to design new products and assess risk. The contrast between advertising and financial services is that the valuation on that personal data is vastly different—informing the correct credit risk profile for a loan is worth significantly more than serving a more targeted ad that is marginally more likely to be clicked on—in large part because the former is anonymized and aggregated while the latter has to be personally identifiable. While mobile operators can and do use their data for both types of use cases, they represent fundamentally different businesses, and it’s unclear to what extent there is leverage across them. Instead of individual operators developing point solutions and new lines of business, they may rely instead on new intermediaries—for example, in early 2017 Ericsson announced a new supply side ad platform specifically for operators, which would pool their encrypted

<sup>81</sup> “GSMA and ComScore Announce U.K. Launch of Mobile Media Metrics,” ComScore, Inc, <http://www.comscore.com/Insights/Press-Releases/2010/2/GSMA-and-comScore-Announce-UK-Launch-of-Mobile-Media-Metrics>.

<sup>82</sup> <https://getrainbow.com/>.

<sup>83</sup> Caribou Digital, “Digital Access in Africa.”

<sup>84</sup> In a similar vein, Internet service providers (ISPs) have long sought to increase their presence in the advertising value chain, and a new ruling in the U.S. opens new potential to do so: In March 2017 the Federal Communications Commission reversed an earlier regulation and will now allow ISPs to sell their customers’ data—including browsing history, location data, and sensitive financial and health information—to advertisers without first obtaining consent, opening up significant range of new business opportunities. See: Jon Brodtkin, “Senate Votes to Let ISPs Sell Your Web Browsing History to Advertisers,” *Ars Technica*, March 23, 2017, <https://arstechnica.com/tech-policy/2017/03/senate-votes-to-let-isps-sell-your-web-browsing-history-to-advertisers/>.

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## Part IV. Implications and discussion

### continued

and anonymized data into larger global segments that can more easily be sold off to advertisers.<sup>85</sup>

Given their first-party customer data, scale, and brand recognition, the mobile operators face unique opportunities for shaping the digital ecosystem. They have a compelling case for being the trusted providers of digital identity, especially given the fact that most operators have to follow KYC regulations for onboarding new customers, yet uptake of the industry's Mobile Connect standard has been slow.<sup>86</sup> With advertising, they have another opportunity to leverage their brand recognition and generally positive consumer perception to position themselves as the privacy-preserving actor in the ecosystem. If they're successful in doing so, and carving out a role in supplying user data to the advertising industry, we may see the personal data market in emerging markets evolve differently than it has in the West.

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<sup>85</sup> Allison Schiff, "Ericsson Is Rolling Out A Mobile Ads Platform For Telcos," Ad Exchanger, March 1, 2017, <https://adexchanger.com/mobile/ericsson-rolling-mobile-ads-platform-telcos/>.

<sup>86</sup> Caribou Digital, "Private Sector Digital Identity In Emerging Markets," 2016, <http://cariboudigital.net/new/wp-content/uploads/2016/08/Caribou-Digital-Omidyar-Network-Private-Sector-Digital-Identity-In-Emerging-Markets.pdf>.

# Conclusion



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## Conclusion

Digital advertising provides a simple and accessible mechanism for monetizing digital content or services—by adding just a snippet of code to their Web site or mobile app, publishers and developers can start earning revenue, lowering the barriers to entry for commercialization of digital businesses. Yet the short- to medium-term outlook for digital advertising as a revenue model in emerging markets is bleak. Significant and widespread reductions in the costs of Internet access will help increase use and engagement, but low monetization rates will still limit the types of businesses that can be built wholly on attention.

The global platforms will continue to publicize quarterly ROW (rest of world) growth figures in order to satisfy shareholder pressure for user adoption, but as the Facebook analysis shows, these efforts are not likely to deliver substantive profits. The presence of the global platforms in these countries will, however, condition the market to expect sophisticated digital content and services for free. As a result, local or regional competitors are unlikely to be successful in gaining significant market share, as they won't have income from more-lucrative developed markets to cross-subsidize their domestic efforts.

The limits to advertising suggest transactional revenue models are more likely to be successful. The Chinese Internet giants Tencent and Alibaba have built up tremendous platform ecosystems based primarily on revenue from transactions, not advertising. But for transactions-based businesses to gain any kind of scale, a digital payments infrastructure has to be in place. In China, Tencent and Alibaba were able to build their own 3rd-party digital payment systems outside the banks, capitalizing on the lack of credit cards in the Chinese market and a rapidly emerging middle class that was embracing ecommerce. While there are many mobile money solutions in place across the Global South, ease of use and penetration haven't yet reached the point where commerce is easy. Martin Nielsen, founder of streaming music venture Mdundo, is trying to move his user base to a subscriber model. He said that even in Kenya, where m-Pesa is a normal part of everyday life, the friction of digital payments is a drag on his firm's subscriber growth.

It may be that the digital ecosystems in most emerging markets are therefore caught between phases of maturity. Rapid adoption of mobile and Internet technology is currently being served by early digital pioneers—mostly from the West—using the advertising model that birthed the Web, yet there isn't sufficient advertising demand to support a broader industry. Transactional revenue models avoid many of the challenges of advertising, but require robust and widespread digital financial services to function.

Instead of the Silicon Valley Internet business model, where moving up the user adoption hockey stick is the success metric that keeps the venture capital flowing, Global South businesses have to build more strategically, working toward profitability from the beginning. Not having the ability to pull the advertising trigger and instantly start monetizing their user base may therefore be a helpful constraint, as it forces these businesses to instead develop more disciplined revenue models that can support more organic growth.

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