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# The Democratic Republic of the Congo: Three Economic Vectors to Expand Digital Access

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## 2 INTRODUCTION

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Having endured violent civil conflict for the last twenty years, the Democratic Republic of the Congo faces many developmental challenges that have proven resistant to intervention. Access to telephones and internet, however, offer a multiplicity of benefits in sectors ranging from microeconomics, to democracy promotion, to agriculture, to public health. The DRC can pursue actionable advances in three ways: by liberalizing the infrastructural sectors necessary to deliver mobile access to encourage foreign investment, by reducing excessive taxes on mobile phones, and by supporting business-friendly policies that reduce consumers' recurring costs. Doing so will respectively address the issue of mobile access availability, of upfront costs of phones, and of recurring costs of monthly subscriptions.

“Mobile access” constitutes access to a phone and SMS services and is generally considered a prerequisite for access to internet—any initiatives targeting internet penetration must also solve the challenges of mobile phone availability. To avoid being mired in the technical details of telephone versus internet implementation, this report will treat the telephone and internet access as intertwined, given that telephone lines “form the backbone for national communication” (Mbarika).

### 3 STATE OF THE DRC

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Understanding Congolese access to mobile phones and the internet necessitates examining both the telecommunication infrastructure as well as the power generation required for things like network stations and mobile phone chargers. The DRC’s vast territory complicates any efforts in developing infrastructure. At 2.3 million square kilometers, the DRC is the second largest country in Africa, but it is also one of its most sparsely populated, with 31 people per square kilometer, compared to the Sub-Saharan average of 45 (World Bank). To this point, multiple journals report disclaimers about the logistical impediments they faced in simply surveying remote consumers in the DRC about their infrastructure access, much less the issues in actually delivering services (Mweze, Kende). Servicing sparse populations is difficult even with the most sophisticated technology, and what little electrical infrastructure exists in the DRC is often artifacts of Belgian occupation, which ended in 1960. During his thirty-two-year dictatorship from 1965 to 1997, Mobutu Sese Seko attempted multiple megalomaniacal development efforts, such as a huge hydroelectrical power station, but the best among them operated at 30% of the proposed capacity and have been dismally neglected since (Van Reybrouck). Mobutu’s overthrow in 1997 precipitated the First African World War, and the two decades of violent civil conflict following his departure have stymied more recent infrastructural expansion.

The Democratic Republic of the Congo has 81 million people, and as of 2016, 31 percent (22 million) had mobile access, compared to the average of 40 percent in Sub-Saharan Africa (SSA). The 31 percent of Congolese with mobile access includes the 8 percent (6 million) of

Congolese who used mobile internet, compared to the SSA average of 22 percent, and 3 percent (2 million) who had access to 3G internet, compared to the SSA average of 10 percent (Deloitte). Compared to the average regional unique subscriber penetration rate of 40 percent, the DRC's 31 percent seems promising, until one considers that the SSA average for minutes of use per connection is 298 minutes, compared to 162 minutes in the DRC (Deloitte). This means that not only do fewer Congolese have access than on average, but also that those with mobile access are online for only half the time of their average regional counterpart. Even at the University of Kinshasa in 2015, the DRC's largest university with nearly 30,000 students, there were only 800 computers and 200 senior staff with internet access that was "no better than that of a typical household in the United States or Europe" (Cottrell). Additionally, the consumers that do have access primarily reside in urban settings, and the 50 percent of the population in rural settings has almost no coverage (Zizomangane). Thus far the DRC has far been excluded from the wave of digitization sweeping Africa, missing out on the expansive benefits of pervasive internet access.

## 4 BENEFITS OF INTERNET ACCESS

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The extent of the issues impeding the expansion of digital access in the DRC can be paralyzing in scope, but they must also be considered in the light of the vast benefits that mobile and internet access can confer, ranging from facilitating economic transactions, to promoting democracy, to encouraging education, to aiding in public health initiatives.

Mobile commerce in Africa is experiencing dramatic growth. The Kenyan mobile money service platform M-Pesa, similar to the American company Square, simplifies companies' delivery of online services by providing a convenient means to make and receive payments (Deloitte). In 2015, users on the platform transacted \$28 billion USD, equal to almost half of Kenya's GDP (Kende). M-Pesa has effectively become a financial institution, offering both mobile money government bonds called M-Akiba, "aimed at increasing savings and citizen participation in the government infrastructure development," as well as M-Kopa Solar, which "allows people to buy solar panels with installments paid through M-Pesa" (Kende). Another Nigerian startup, Aella, is

attempting to service the 435 million Africans with limited credit resources by identifying creditworthy borrowers, expanding the microloan scene in Africa (Kende). Further, mobile technologies and services are contributing to growing portions of Africa's GDP. By 2020, mobile transactions are expected to account for 7.6% of Africa's GDP and will likely continue to grow (Deloitte). Prohibitively high bank fees often relegate Congolese to the informal, cash-only economy and limit the scope of formal financial institutions for laypeople (Mbarika). Only 4% of Congolese have an account with a traditional bank, but almost 10% use a mobile account for transactions like paying bills, holding paychecks, purchasing products, and receiving government transfers (Deloitte). Access to a financial ecosystem like M-Pesa would be hugely valuable for the DRC.

Digitizing governmental services has the potential to improve delivery, increase efficiency, and expand accountability, and recent internet shutdowns in the DRC have demonstrated the importance of internet access in facilitating democracy and freedom of speech. The governmentally-affiliated Post and Telecommunication Regulatory Authority of the Congo (ARPTC) governs internet service providers (ISP) and has ordered the suspension of connectivity to quell dissenting "lobbying [groups and] civil society organizations, especially human rights advocates" (Zizomangane). That the government targeted internet access demonstrates its criticality in protesting government practice and further highlights that in order to demand good governance, the Congolese population needs to be able to share thoughts or organize themselves.

"Smart agriculture" is another exciting field benefitted by phone and internet access, providing an "interesting intersection between one of the oldest human activities and one of the newest" (Kende). Internet access for farmers is expected to increase production by 10 to 20%, which is significant on a continent in which agriculture employs 70% of works and generates 30% of GDP (Kende). Even simple distribution of information yields results: eShamba disseminates "training and advice on good farming practices to 230,000 young farmers in Kenya and Tanzania," producing 50% increases on crop yields and a 125% return on investment (Châtel). A Congolese app called Mogribu offers insight into best crop options for specific climates, connects local produce markets, and "acts as a useful source for guidance on farming techniques and skill

development [such as] how to plant crops [or] how to use fertilizers” (VC4A). The Bill and Melinda Gates Foundation and Mastercard’s Nairobi Labs for Financial Inclusion have supported 2KUZE, a digital platform that “aims to connect [agricultural] smallholders with agents, clients, and banks to enable them to conduct their transactions via their mobile phones without having to walk for hours to markets [with all of their produce]” (Châtel).

Digital health, the application of digital technology to the public health sphere, has also grown in recent years. It has achieved remarkable success in Africa, comprising half of the region’s digital traffic between telemedicine, mHealth, and electronic health record searches (Tran Ngoc). Internet-enabled nurses are projected to save between 0.5 to 1 hour every day by simplifying administrative overhead, and SMS programs have disseminated important information about vaccine initiatives and safe sexual practices (Kende). Other recent applications include “management of patient and public health data, education of healthcare workers, delivery of remote health services, and provision of health information and services through mobile technology” (Tran Ngoc). Mobile health initiatives in the Nigeria were integral in “[reducing] the reporting time of Ebola cases during the recent outbreak” and could prove similarly valuable in the DRC, which has suffered multiple Ebola epidemics in recent years (Deloitte).

Other SSA countries, particularly Kenya, Rwanda, and Nigeria, have recognized the myriad benefits of mobile and internet access and are actively pursuing digital inclusion. For example, the start-up ecosystem across Africa is thriving, with 180 active accelerators and incubators fostering entrepreneurial young Africans (Deloitte, Mbarika). “Leapfrog” technologies such as mobile phone, Wi-Fi, and low Earth orbit satellites can facilitate the development of other sectors (Cottrell). If the DRC does not actively pursue digital availability at this technological inflection point, it risks losing out on critical development, failing to become a regional digital leader, and missing out on the tangible benefits offered by a digitally integrated society.

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## 5 SPECIFIC CHALLENGES AND PROPOSED SOLUTIONS

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The impediments in rolling out access to internet can seem insurmountable, and there has been relatively limited international intervention or engagement in the DRC thus far. However, multiple concrete steps can be taken in the DRC that have proven successful in other nearby countries. Firstly, the DRC needs to encourage international companies to develop decentralized infrastructure by engaging with NGOs and creating a business-friendly operating environment—this will solve the challenge of availability. Secondly, exorbitant taxes of the price of phones need to be reduced—this will address the issue of excessive upfront costs for consumers. Thirdly, the DRC needs to simplify its regulatory structure to reduce challenges to service providers and pass on savings to consumers—this will limit the recurring costs for consumers.

A critical problem is simply the insufficiency of power grids for telecommunication networks. Many base stations and transmission towers require constant power to operate and opt to use diesel generators rather than rely on a highly inconsistent power grid prone to blackouts (Deloitte). A study of similar conditions in Nigeria found that ad hoc generation techniques like this ended up costing double when compared to “energy reliable markets such as Ghana, Kenya, and Tanzania” (GSMA, 2011). To address inconsistent power outages, the Congolese government should follow Rwanda’s success with engaging solar power providers, particularly non-profit NGOs. When Rwanda reduced tariffs on solar equipment at the behest of the UN, international investment “flowed more easily [as Rwanda prioritized] electricity and [abandoned] economic and legal barriers to getting it” (Rogers). NGO-sponsored, self-sufficient microgrids emerged all over the country within two years. The DRC has some of the highest import tariffs in the world (Van Reybrouck), and exempting solar panels from them could strongly contribute to the availability of microgrids and decentralized power throughout the country (Deloitte).

A complementary vector for developing digital access infrastructure requires embracing new technology, like satellite networks, that do not incur “geographically-oriented obstacles” in a country as large and logistically challenging as the DRC (Mbarika). The last time the DRC

initiated a telecommunication infrastructure flurry was in anticipation of the 2010 FIFA World Cup in South Africa, during which a new submarine cable to connected Kinshasa to the global internet (Cottrell). The failure since then to expand services, along with an absence of local expertise, indicate there is insufficient internal momentum to start an infrastructural revolution and that the DRC needs to leverage the technical sophistication of foreign actors. The Israeli satellite network company Gilat Telecom has expanded the coverage of their O3b Medium Earth Orbit satellite fleet from Kinshasa to Lubumbashi, and the DRC needs to actively engage other actors to continue to increase satellite coverage (Pearce). Offering business incentives like rebates or preferential trade relations would encourage international investment.

A second challenge to digital proliferation is the high upfront cost of mobile phones, which delegates to the 2017 National Forum on the Governance of the Internet in the Democratic Republic of the Congo identified as the primary issue impeding consumers' mobile access. The cost that consumers see is largely a reflection of nearly predatory taxation practices. The Congolese government recognizes the inevitability of digital growth, and while aggressive taxation may fuel government revenue in the short term, it will be to the detriment of long-term socioeconomic development. Compared to other industries, the mobile sector is taxed very disproportionately, with a 16% VAT levied on all revenue from sector sales and a 10% excise tax applied directly to consumer prices (GSMA, 2011). Rather than treating digital inclusion as a potential socioeconomic boon and even subsidizing it to encourage penetration, the DRC's government is effectively treating mobile services "[analogously] to products with negative social impacts such as alcohol, tobacco and gambling, which governments typically [try to discourage]" (Deloitte). Naturally, these costs are passed on to consumers, and they disproportionately impact socioeconomically disadvantaged Congolese. Reports suggest that "the poorest 20% of households would have to spend 19% of their annual income for a basic phone" and those in the richest 20% would still spend a third of their annual income for a premium phone (Deloitte). Prices of this magnitude represent nearly insurmountable barrier to entry for the people who would benefit the most from access to the internet.

Taxes on the mobile sector should be phased out quickly to treat the telecommunications industry more similarly to other sectors with positive externalities, such as water and power

delivery. An initiative in Kenya has demonstrated the immediate benefits of reducing taxation on mobile phones, “recognizing the importance of [affordability to] spur mobile access” (Deloitte). Within three years of exempting handsets from VAT, sales in Kenya increased by 200%, dramatically exceeding regional growth and definitively indicating that high prices discouraged consumption (Deloitte). Predictions estimated that contributions from mobile telephone commerce grew by nearly 250% and mobile employment increased by 67% (Deloitte). Deloitte predicts that a reduction of excise duties on mobile handsets in the DRC from 10% to 5% could encourage an additional 1.6 million mobile connections from current non-subscribers over a four-year period, of which “approximately 500,000 are expected to [use] 3G technology” (Deloitte). The report extrapolates that a total elimination of excise taxes would double that figure to 3.2 million new subscribers, and more importantly, that taxes on users’ productivity would quickly cover the revenue lost in exempting mobile phones from excise taxes or VAT.

Thirdly, and bearing resemblance to the DRC’s generally ineffective institutions, fragmented regulatory structures complicate companies’ ability to provide mobile access. Five major cellular phone and internet providers operate in the DRC: Airtel, Vodacom, Tigo, Orange, and Africell. According to Deloitte’s report, the DRC’s five “operators are also subject to uncoordinated national and regional regulations and taxes, have to make payments to multiple revenue authorities, and are subject to oversight by a number of different regulatory bodies often with overlapping jurisdiction” (Deloitte). For example, abrupt changes to regulatory fees in May 2016 led to sharp and sudden increases of the price of internet package: Vodacom’s price for a 4GB data bundle jumped from \$28 USD to \$100 USD; Orange jumped from \$35 USD to \$62 USD; and Airtel tripled from \$30 USD to \$90 USD (Zikomangane). This unpredictability is damaging to both providers and consumers. Providers will be reluctant to invest in costly infrastructure for fear of stranded assets, especially neglecting rural communities if they are not guaranteed a profit from them, and any price increases are passed on to already-burdened consumers who are frequently at their economic threshold anyways. Additionally, the Congolese government has implemented numerous anti-business policies. Notably, the annual numbering fees “charged on the connections registered to an operator’s network” effectively punish

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companies for expanding their customer base and further reduce the incentive to connect hard-to-reach and expensive rural communities (Deloitte).

Many multinational corporations (MNCs) recognize that the 81 million Congolese have the potential to become a valuable market, and the Congolese government would benefit from designing markets that are friendly to foreign companies. The first step is removing barriers to business, particularly by consolidating the regulatory environment to a national oversight body and adding provincial specificities only where necessary. By unifying tax authorities, the DRC could “provide clarity and address complexity and burden on mobile operators,” who would then hopefully pass on savings to consumers (Deloitte). Halving the annual standard numbering fees also has the potential to increase connections by another 409,000 consumers, of whom 129,000 could be 3G connections (Deloitte). There will still be the remaining problem of servicing rural markets, given that private investors have little incentives to solve the “last mile problem” for isolated communities, but liberalizing the telecommunications sectors will reduce unreasonable prices for consumers and generate momentum for bringing its population to the Digital Age.

## 6 CONCLUSION

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The DRC has not led Sub-Saharan Africa in technical advances, but nascent developmental efforts show that Congolese people recognize the myriad benefits of mobile access. Congolese without access to formal banking institutions have started migrating to mobile financial platforms, and digital health initiatives could prove highly valuable during epidemic outbreaks. With three concrete steps, the DRC can better open its economy to get more people online. Firstly, to address the lack of availability, the DRC needs to lower tariffs on solar equipment to foster decentralized power generation as well as levying sophisticated international partners to deploy responses like satellite fleets. Secondly, to reduce upfront costs of phones, the government needs to exempt them from VAT and excise taxes that treat phones like a negative social externality. Lastly, to limit recurring costs for consumers, the DRC needs to consolidate its regional regulatory bodies and reduce numbering fees that effectively cap the size of companies.



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