The Mobile App Divide

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Discussion Paper No. 1

17 November 2015

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The Mobile App Divide

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Introduction

The first mobile app store was introduced by Apple just seven years ago, and already apps are the main way that many interact with the Internet, using a wide variety of smart devices including phones and tablets. This popularity has generated an app economy worth multi billions of dollars, generating welcome jobs and earnings. However, as with the digital divide for Internet access, the benefits of the app economy are not felt by all.

In developed countries, users have a choice of more than a million apps, which have been downloaded well over one hundred billion times. On their side, app developers have access to a market of well over a billion users, and have earned billions in revenue from paid downloads, in-app purchases, and advertising.

By contrast, in Sub-Saharan Africa, in only exactly one country – Nigeria – do users and developers have the same opportunities as in the developed countries to create and use free and paid apps. In many of the countries, developers can only make free apps available – not paid apps. In the other countries, developers cannot even make free apps available. By the same token, in some countries users can only download free apps – in others it is not clear that they have access to any apps through the main app stores.

Overall, this leaves a picture of a significant lost opportunity: on the one hand, the apps that many use every day are not available to all; on the other hand, the marketplace for developers to earn their living is also not available. As we focus on closing the digital divide for access, it is important to also close this app divide to ensure that everyone has the opportunity to benefit from the growing app economy.

Background

At the Internet Society, our vision is that 'the Internet is for Everyone'. One of the benefits of the Internet, in turn, is that it enables 'permissionless innovation' - anyone can develop an Internet-based service without seeking authorization from anyone else. These concepts reinforce each other, as innovations such as the World Wide Web make the Internet more accessible and pave the way for further innovations.

The mobile Internet is clearly central to the vision that the Internet is for everyone – as the total number of users passes 3 billion, more and more use mobile as their main or only form of access. Today, more than 80% of Internet users have accessed the Internet via a mobile device, and clearly the next billion to go online

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will be heavily dependent on the mobile Internet. Many of these users will increasingly access the Internet via a smart device – a phone or tablet that accesses the Internet using mobile broadband or WiFi.[2]

The mobile Internet is not just making the Internet more accessible in developing markets, it is also making entrepreneurship more accessible. Internet users can access many of the necessary ingredients for innovation – technical and business education and training, research, fundraising, collaboration tools, and even mentorship – lowering the barriers to entry for entrepreneurs around the world.[3] In addition, the mobile Internet also provides new outlets for innovation via app stores.

One of the defining features of the smart device is the ability to interact with the Internet via apps – software programs downloaded to the device and accessed via icons. These apps are typically accessed through online stores provided by the vendor or third parties - a concept that is itself a beneficiary of permissionless innovation. Apps have proven to be very popular. In the US at least, based on recent numbers, almost 90% of mobile Internet access involved an app, as opposed to a browser, and even including desktop usage, more than half of all online time uses mobile apps.[4]

As a result of their popularity, app stores make a large new global market available to entrepreneurs with very low access barriers – once the developer has registered and uploaded an app, the store provides storage, discovery, distribution, and sales of the apps, and can arrange payments as well. As a result, apps represent a good barometer for the conditions facing Internet entrepreneurs around the world – barriers to innovating through an app store are likely to represent barriers to any other kind of Internet innovation.

The opportunity represented by apps was quickly identified by entrepreneurs around the world. For instance, Wilfred Mworia, a 22 year old student, greeted the announcement of the Apple App Store in 2008 by developing an app providing details on events in his home city of Nairobi, Kenya. This itself was not remarkable, as he was certainly not alone in anticipating the opportunity – what was remarkable, however, was that he developed and released the app without ever using an iPhone. In an article at the time, he stated that even though he did not have an iPhone, "I can still have a world market for my work".[5]

Mr. Mworia turned out to be as prescient as he was determined. The rapid growth in smart device usage around the world has also been accompanied by a rapid growth of the global app economy. The value of the app economy in 2014 was estimated at USD 86 billion and this value is expected to reach USD 143 billion by

2. For more detail, see Internet Society *Global Internet Report 2015 : Mobile Evolution and Development of the Internet*, http://www.internetsociety.org/globalinternetreport/assets/download/IS_web.pdf

3. See Kende, Michael, "ICTs for Inclusive Growth: E-Entrepreneurship on the Open Internet", World Economic Forum *Global Information Technology Report 2015*, April 2015, http://reports.weforum.org/global-information-technology-report-2015/1-4-icts-for-inclusive-growth-e-entrepreneurship-on-the-open-internet/.

4. Comscore, *The 2015 US Mobile App Report*, http://www.comscore.com/Insights/Presentations-and-Whitepapers/2015/The-2015-US-Mobile-App-Report?ns_campaign=US_US_SEP2015_WP_MOBILE%20APP&ns_mchannel=email&ns_source=comscore_elq_US_US_SEP2015_WP_MOBILE%20APP&ns_linkname=text_general&ns_fee=0

5. See http://www.nytimes.com/2008/07/20/business/worldbusiness/20ping.html?_r=0

2016.[6] Furthermore, the number of app downloads has also increased, reaching an approximate 179 billion downloads in 2014.[7]

App stores offer two significant opportunities. For entrepreneurs, they offer a global marketplace for innovation and the opportunity to earn revenues. For instance, Google's Android platform has over 1.4 billion active users worldwide.[8] At the same time, it may also lead to more local content, as entrepreneurs identify gaps in their home markets, which they know best, and create apps to fill those gaps. This local content, in turn, makes the Internet more attractive, increasing adoption and usage and helping to make the local market yet more attractive for entrepreneurs.

However, in our own research and discussions with entrepreneurs in Nairobi and Addis Ababa, there are still myriad barriers to realizing these two opportunities. In particular, app stores in Sub-Saharan Africa are not fully open. First, apps cannot be purchased in every country – this in itself limits the ability and incentive to create local apps, and supports a focus instead on global markets. Second, however, there are even fewer countries where entrepreneurs can upload apps to sell, not just in their own country but worldwide. While we focus on Sub-Saharan Africa here, the issues are similar in other developing regions of the world.

Barriers to App Developers in Sub-Saharan Africa

In assessing the app economy in developing regions, it is important to consider several key distinctions. First, we differentiate between app users and app developers, and we also differentiate between free and paid apps (see box).[9] Where app users are able to download apps, they have access to apps from all eligible countries. Likewise, where developers are able to make apps available, they can make them available to any country where apps are available. However, app availability for users does not always correspond to the ability for app developers to upload apps.

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6. Global Internet Report 2015, Section 2.

7. Forbes, (2014). Mobile App Usage by the numbers. Retrieved at: http://www.forbes.com/sites/niallmccarthy/2014/10/29/mobile-app-usage-by-the-numbers-infographic/

8. See http://techcrunch.com/2015/09/29/android-now-has-1-4bn-30-day-active-devices-globally/

9. In this case, app developers could include individual entrepreneurs and companies, seeking to develop free apps, paid apps, or corporate apps that are used for providing information about their goods or services.

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Box: Free vs. Paid apps

Presently there are two types of apps offered in the app market place: free and paid apps.

Free apps are distributed by developers through the various app stores and allow users to download content without any form of payment involved.

Paid apps require users to pay in order to be able to download the app into their mobile phones, with the payment split between the developer and the app market.

Up to the year 2015, free apps represented the biggest percentage of apps available in Google Play. About 68.8 percent of the apps found in this platform are offered for free, whereas 31.2 percent are paid applications.[1]

1. http://www.statista.com/statistics/266211/distribution-of-free-and-paid-android-apps/

In particular, there are countries in which users can download apps, but from which developers cannot register to distribute apps. This means that users can download apps from the rest of the world, but no apps are available from local distributers. Similarly, there are countries in which users can only download free apps, but not paid apps, and likewise countries from which developers can register to distribute free apps, but not paid apps.

It is important to consider the role of the app store, acting as the middleman between the users and the developers, and whose rules determine the availability and distribution of apps for each country. These decisions are based on business considerations, but we understand that financial conditions, such as taxation and compliance requirements, may raise barriers for selling apps.

In this report we focus mainly on Google Play, which distributes apps to smart devices using the Android operating system. As background, we used research gathered and provided to us by UNCTAD, along with our own review and analysis.

We chose Google Play mainly because of the availability of relevant information, but also because Android has the largest mobile operating system market share in Africa.

In any case, we do not believe that the Google Play policies are unique; other app stores have similar policies, likely based on similar market and regulatory considerations. On the other hand, unlike Apple in particular, Android devices can be configured to work with other third-party app stores, whose policies can and do differ from Google Play's, creating more opportunities for users and developers, as discussed below.

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1. Restrictions on local apps

When developers decide to target a market to sell apps, they need to consider how to reach the buyers. In Sub-Saharan Africa the easy distribution of apps that is witnessed in most developed countries is hampered by a series of factors – first, apps cannot be accessed in every country because of restrictions on app stores; second, even where they are available, low smartphone penetration along with limited options for payment for the apps act as additional barriers.

Our research shows that Google Play is only fully available in a total of 25 of the 51 countries in Sub-Saharan Africa, meaning that only in half of the countries can users download free or paid apps (see Annex).[10] Users in other countries may be able to access free apps or must find an alternative app store, if available, or forego many of the benefits of a smart device.[11] Likewise, for the Apple App Store, developers can only sell apps in 29 of the 51 countries.[12]

Even in countries where users can download apps, there are limits on the market size, because smartphone adoption is lower compared to developed economies. According to Analysys Mason Research, in 2014 only 11% of the population in Sub-Saharan Africa was accessing the mobile Internet, as compared to a global average of 36%.[13] Furthermore, there may be limits on the payment options available to users in the 25 Sub-Saharan countries where paid apps are available, since there is low credit card penetration and the most common form of payment at the biggest app stores require the use of a credit card.[14]

As a result, the market for free apps is limited to users with smartphones, and the market for paid apps is significantly more limited to those with a means to pay. This might lead app developers from Africa to focus on global markets as a source of revenue, but as we see in the next section, there are also restrictions on the ability of African developers to develop apps for the global market.

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10. Google (2015). *Supported locations for distribution to Google Play users*. Retrieved at: https://support.google.com/googleplay/android-developer/table/3541286?hl=en

11. According to Google, "[l]ocations that are not explicitly listed [in the table of countries with access to apps] may fall under the Rest of the world category." As a result, it is not clear which countries have app availability other than the 25 listed explicitly. Id.

12. We were not able to find an explicit list of countries where consumers could download apps, paid or otherwise, but were able to find a list where developers can sell apps, which we assume corresponds to the countries where users can buy apps. There may be more countries where free apps are available to users. See https://developer.apple.com/library/ios/documentation/LanguagesUtilities/Conceptual/iTunesConnect_Guide/Appendices/AppStoreTerritories.html#//apple_ref/doc/uid/TP40011225-CH18-SW1.

13. *Global Internet Report 2015*, Section 2.

14. In economies like Kenya, in 2011 only 6.1 percent of the individuals, from the age of 15 and onwards, owned a credit card. In Ethiopia, there are no credit cards at all, only debit cards to use at banking machines and some stores. In contrast, in developed economies there is much less constraint. For example, in the United Kingdom the percentage of individuals with access to a credit card in 2011 was of 51.6 percent *UNCTAD, Information Economy Report 2015: Unlocking the Potential of E-commerce for Developing Countries*.

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2. Restrictions on sellers of apps

Constraints on the number of users who can buy apps in Africa are not the only barriers for app developers in Sub-Saharan Africa. App stores have eligibility restrictions, which limit the countries from which developers can offer apps, and also determine which kind of apps that developers are able to offer, free or paid (see box above).

Stores like Google Play and the Apple App Store require developers to create an account that grants them access to the app stores. This registration requires a fee of USD 25 for the Google Play store and USD 99 for the Apple App store. However, such registration is not available to developers in every country.

For instance, in the Google Play platform, developer registration is only allowed in 25 out of 51 countries in Sub-Saharan Africa (see Annex).[15] This gives developers the right to distribute free apps to any country where Google Play is available.[16]

To sell paid apps, a developer needs to create a merchant account, which allows them to receive payments. In Sub-Saharan Africa for Google Play, at least, only developers in Nigeria are allowed to create a merchant account. This means that only they can create direct revenue from selling apps, whereas developers in the rest of the eligible Sub-Saharan countries are forced to offer their creations for free or use some of the alternative methods of monetizing their apps, as discussed below.[17]

Thus, for developers in Sub-Saharan Africa, not only is the number of countries in which users can buy paid apps very limited, there is only one country in which developers can register to sell apps, regardless of where the buyers are located. This makes it very hard for African developers to exploit the full potential of the app economy.

To sustain their business, app developers need to create revenue. As African developer Andrew Mugoya notes, the hype surrounding the African app developer scene "will inevitably die down and most developers will realize that to survive they will need to offer a product that can translate into a business."[18] This will limit many prospective developers from participating in the app economy, since the lack of possibilities to sell their apps provides little incentives for entrepreneurship in app development.

In discussions with entrepreneurs in Kenya, we learned that some turned to relatives or friends in developed countries to register their apps and receive revenues – however, this is very ad hoc, and not likely available to many would-be entrepreneurs. More formally, the International Trade Centre is helping developers create cooperatives in the US that can sell their apps and help distribute the revenues. While useful, these solutions

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15. Google (2015). *Supported locations for developer & merchant registration.* Retrieved at https://support.google.com/googleplay/android-developer/table/3539140?hl=en.

16. In Equatorial Guinea and Seychelles, developers can make free apps available to the worldwide Google Play store, but it is not explicit that users in those countries can access the Google Play store.

17. As discussed earlier, we could find a list of the countries in which apps could be sold in the Apple App Store, but could not find a list of countries in which Apple App developers could register to sell apps.

18. Venture Capital for Africa, (2011). Andrew Mugoya: 'African app developers have to forge a niche in the global marketplace'. Retrieved at: https://vc4africa.biz/blog/2011/11/02/andrew-mugoya-african-app-developers-have-to-forge-a-niche-in-the-global-marketplace/

do not address the underlying issues restricting app developers across Africa from full access to the app stores.

Other typical models for generating revenues from apps are also largely closed off for developers in Africa.

Opportunities for developers

There are nonetheless opportunities for Sub-Saharan developers to benefit from their app innovations. Developers can find alternative platforms that can function as a substitute for Google Play, and that have less stringent regulations. Similarly, developers can find different approaches to monetize their applications to help them have a sustainable business that allows for innovation and e-entrepreneurship to occur.

Freemium: We note first that the freemium model is not available in countries without paid apps. The freemium model allows developers to offer free apps, from which users can make in-app purchases to receive premium content. This is the most widely used method by developers worldwide to generate revenue. For instance, in 2014 the revenue from freemium apps grew to "around 98 per cent of total worldwide Google Play revenue in May 2014." However, as indicated in the Google Play Developer Program Policies, those who cannot sell paid apps cannot earn in-app revenues from freemium apps.[19]

Alternative app stores: The rapid growth of the app economy has been accompanied by the appearance of alternative stores for Android users other than Google Play.[20] These contending platforms can help developers from Sub-Saharan Africa to reach a bigger audience, expand their market opportunities and facilitate the reception of payments.

One such example is the SlideMe platform that offers independent curated apps through the Android Open Source Project.[21] It allows developers to sell their applications globally and choose from a variety of methods to receive app revenues, such as PayPal, wire transfer to a bank account, Amazon payments and even Bitcoins.[22] For developers in Sub-Saharan Africa this kind of platform offers opportunities to earn revenues from a large user base, second only to Google Play in global reach for Android apps.[23]

Mobile Payments: One possible payment solution for developers is offered by mobile money. African countries are on the lead of mobile payment around the world. In Kenya for instance, after the introduction of M-Pesa in 2007 digital payments have become extremely common.[24] According to software engineer Kevin Njoki, if telcos would allow developers to charge users through mobile payments through an existing, or new,

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19. Google Play (2015). Google Play Developer Program Policies. Retrieved at: https://play.google.com/about/developer-content-policy.html

20. Android users can access stores other than Google Play, including SlideMe, discussed here, Amazon, and GetJar. This requires changing settings to allow alternative sources of apps, and may expose Android users to accidentally 'sideload' apps with malware.

21. Slideme (2015). About SlideMe. Retrieved at: http://slideme.org/about-slideme

22. idem

23. idem

24. WSJ (2015). Making change: Mobile Pay in Africa. Retrieved at: http://www.wsj.com/articles/making-change-mobile-pay-in-africa-1420156199

market place, the app economy of Kenya could boost rapidly and "witness an exponential growth in the number of quality apps being created out there."[25]

Mobile Operator Distribution: Moreover, developers may also have the option to directly approach mobile operators in Sub-Saharan Africa and offer them their applications. The operators can then offer these apps to their subscribers.[26] This way, developers can access the whole user base of the operators, receive payments for their apps and at the same time offer local content apps that can foster the development of the app economy in the region.

One example of this is the Opera Subscription Mobile Store, which allows operators to create their own app stores and offer unlimited app download to users for a weekly fee that is billed to the subscriber.[27] However, this would require making apps available on multiple operators' platforms, and is not likely to equal the reach of a global store such as Google Play. This might not be a significant issue if the apps are in the local language or otherwise targeted at the local market, but could restrict more regional or global expansion prospects.

App Ads. There is the possibility of offering free apps with advertising, where payments are not possible. With mobile app advertising, developers join an ad network that sells space in apps to advertisers. For every click on the ad, the network receives payment from the advertiser and then a portion of this goes to the developer.[28] This means that even if developers in Sub-Saharan Africa are not able to sell applications directly through the app stores, they can still generate revenue by adding advertisement into their free apps.

While users tend to prefer apps without advertisement,[29] given the limitations posed by the main app stores, developers may offer free apps with advertisement as a source of revenue. This also saves the users from having to pay for the app, even where that option is available. According to the CEO of App Annie "in-app advertising is a rapidly growing source of revenue…and it's clear that it is beginning to rival freemium as a way to generate revenues."[30]

For developers in Sub-Saharan countries this is very positive, since it means that they can generate revenues. However, even with this model developers still need to be able to receive the payments made by the ad network platform chosen. Furthermore, as smartphone usage remains low in Sub-Saharan Africa, in

25. IT Web Africa. Kenyan app developers struggle to make money. Retrieved at: http://www.itwebafrica.com/mobile/309-kenya/232754-kenyan-app-developers-struggle-to-make-money

26. See for example http://www.pcworld.com/article/2949872/telecom-providers-launch-app-challenges-to-spur-innovation-in-africa-asia.html.

27. Opera (2015). Opera Subscription Mobile Store. Retrieved at: http://www.operasoftware.com/content/download/5990/210029/version/4/file/c95170d1e6defa1887930785ab2ebb8988947892__7e0660ebcddf5befa3b254d0c9dbdaf1.pdf

28. Chron (2015). How much in advertising revenue can a mobile app generate ? Retrieved at : http://smallbusiness.chron.com/much-advertising-revenue-can-mobile-app-generate-76855.html

29. As noted in a recent petition to add South Africa to the Google Play merchant list, the problem with app advertisement is that it makes applications less appealing to the users, reducing the success of the applications due to constant disturbance from ads. See i petitions (2015), *Add South Africa to the Google Play merchant list.*

30. IDC (2014). Freemium & In-App Advertising Business Models Take Center Stage as the Mobile Economy Matures. Retrieved at: https://www.idc.com/getdoc.jsp?containerId=prUS24771914

the short term, advertising can only be profitable when addressed to the global (or large developed country) market.

Brand Partnerships: Developers can try to create partnerships with important brands from the region and add content that makes the brand recognizable to the public in the app. This method is different than advertising, since it does not display constant banners that interrupt the experience of the user of the app. One such example is the Temple Run 2 game that added Usain Bolt in the game as a result of a partnership with an associated brand.[31] These partnerships can help developers to monetize their apps, however, sponsors will usually choose well-recognized developers and apps with large traffic, thus being of less impact for smaller e-entrepreneurs.

Conclusion

The potential opportunities for entrepreneurs in Sub-Saharan Africa in the app economy are clear and valuable, both for delivering local content apps to users in the region, and to help the entrepreneurs develop businesses and earn revenue. However, to date these opportunities have been difficult to realize.

Using Google Play as an example, the diagram below (and corresponding map in the annex), highlights the challenges. In only one country in Sub-Saharan Africa – Nigeria – can users and developers buy and sell apps as in any developed country. In 22 countries users can download free and paid apps, but developers can only make free apps available. In another five countries, there are further restrictions on the ability to use apps or make them available. In the remaining 23 countries developers have no options, and it is not clear whether users can even download free apps.
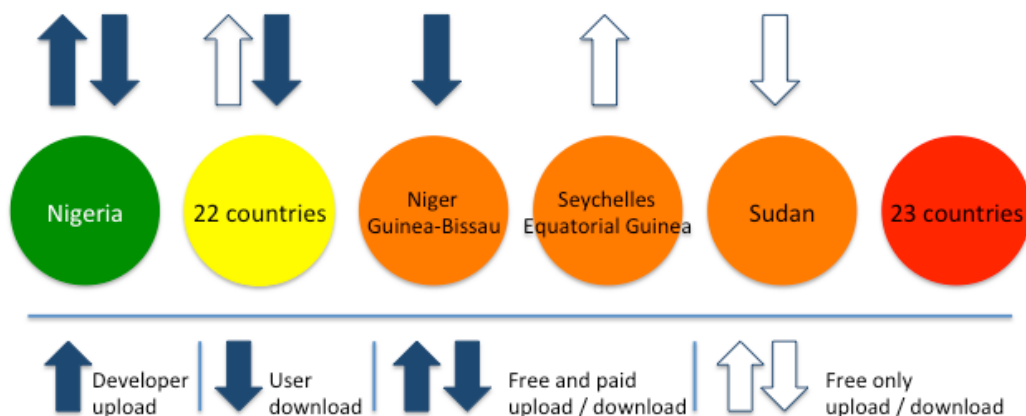
We note that this is a lost opportunity – not only does it prevent many app developers from earning revenues off their innovations, but it represents another dimension in the digital divide that is holding back many from enjoying the full opportunities of the Internet. We encourage the stakeholders in these countries to work together to expand the markets for developers to be able to develop apps, and for users to be able to download them.
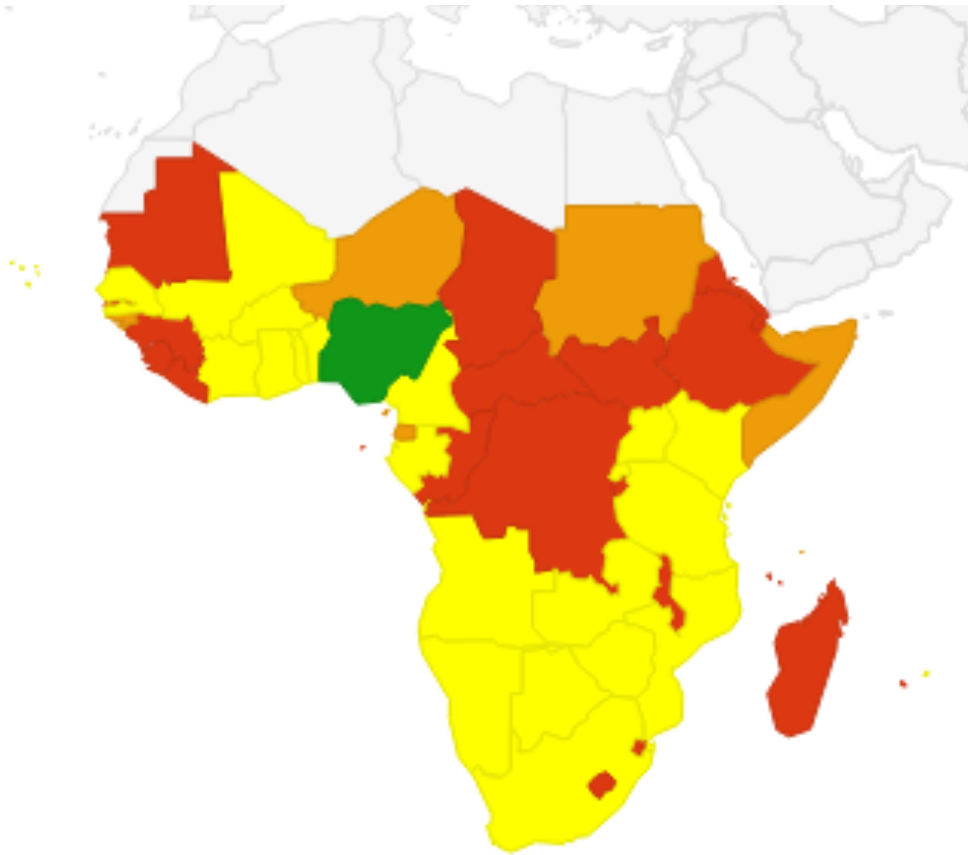
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31. Appflood (2013). 40 iOS and Android mobile monetization strategies for app developers. Retrieved at: http://appflood.com/blog/40-ios-and-android-mobile-monetization-strategies-for-app-developers
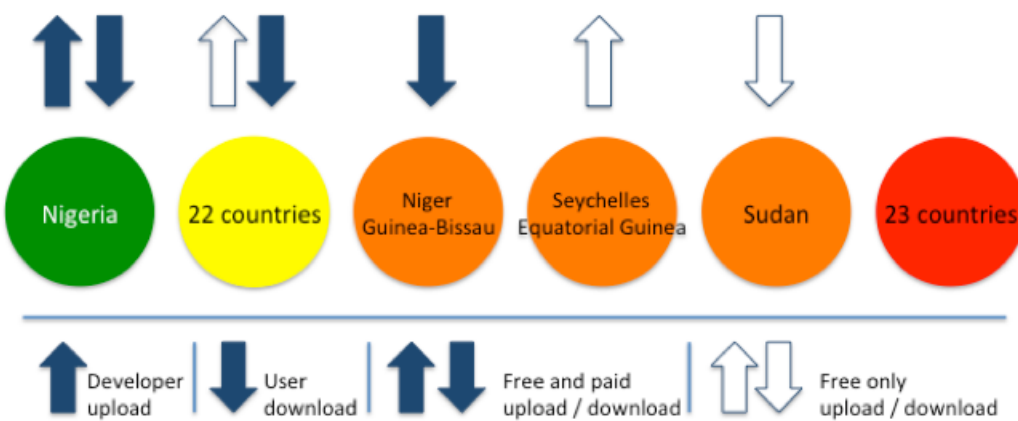
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Issues to be addressed include working with the app store platforms to expand eligibility for paid apps; identifying alternative platforms where feasible; and increase alternative payment and monetization opportunities. In particular, in countries where there are financial impediments to paying app developers for their global sales, we recommend that these barriers be addressed to increase the potential for entrepreneurs to monetize their innovations.

As the base of smartphones grows across the region, the opportunities expand accordingly, and enabling more local app development and access will further increase the attractiveness of the Internet for everyone, everywhere.

Annex: App availability and distribution (Google Play, 2015)

Legend:

| Nigeria | 22 countries | Niger Guinea-Bissau | Seychelles Equatorial Guinea | Sudan | 23 countries |

| Developer upload | User download | Free and paid upload / download | Free only upload / download |

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