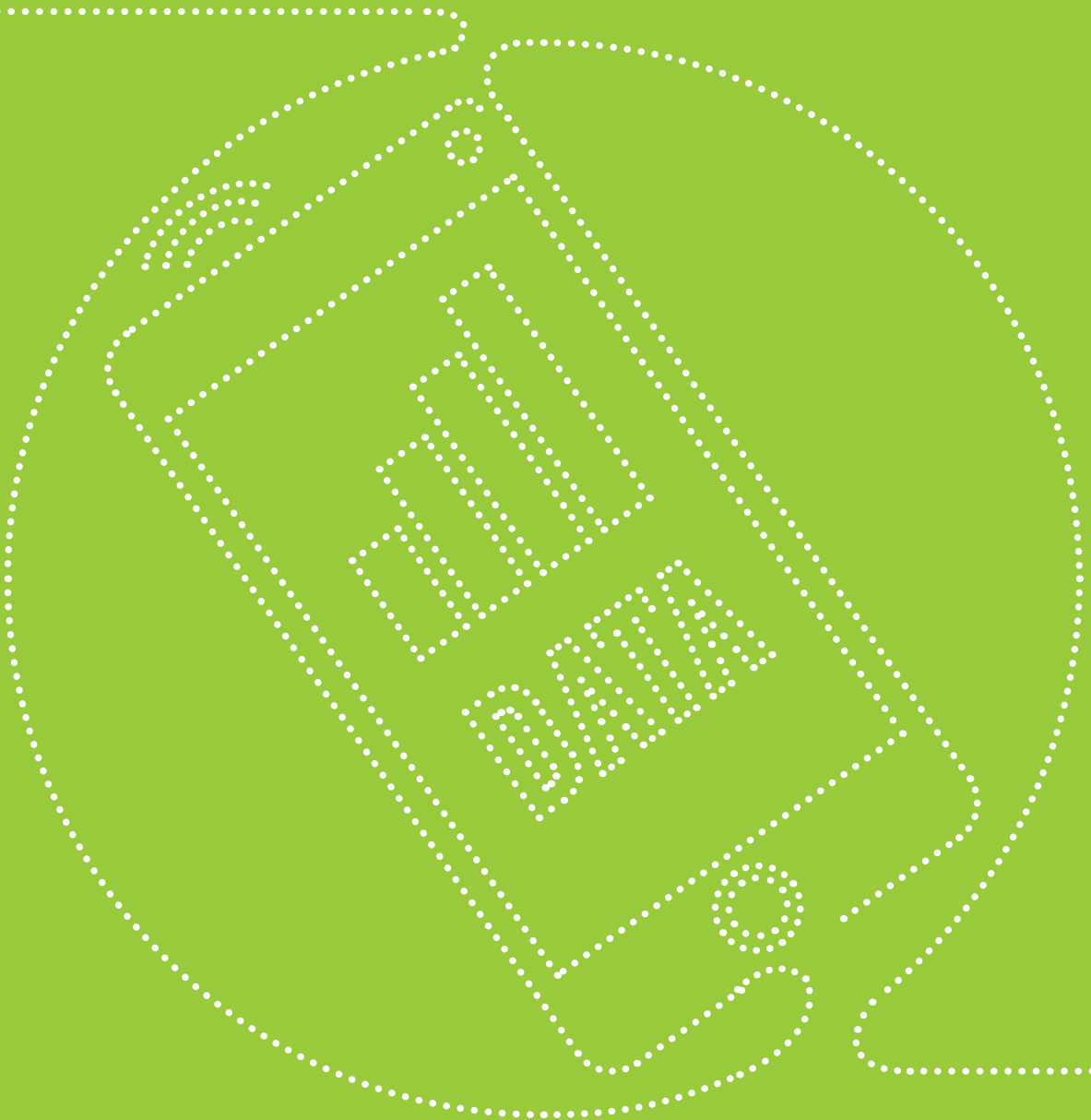# A4AI | ALLIANCE FOR AFFORDABLE INTERNET

THE IMPACTS OF EMERGING MOBILE DATA SERVICES IN DEVELOPING COUNTRIES

NOVEMBER 2015

RESEARCH BRIEF NO 1:

MODELS OF MOBILE DATA SERVICES IN DEVELOPING COUNTRIES

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THE IMPACTS OF EMERGING MOBILE DATA SERVICES IN DEVELOPING COUNTRIES

RESEARCH BACKGROUND

The positive socio-economic effects associated with Internet access and use are well documented. Indeed, governments across the world have sought to promote national development goals by increasing broadband access. However, the majority of the world's people are not yet online; it is estimated that by the end of 2015 over two-thirds of the global population — equivalent to over 4 billion people — will still be unconnected, with the majority of this offline population concentrated in developing countries[1].

The Alliance for Affordable Internet (A4AI) has been working to address this challenge by focusing on one of the most important barriers to access: the high cost to connect to the Internet. The last few years have seen a growing number of initiatives that aim to increase usage, including a range of data service plans that offer reduced-cost or zero-rated data (i.e., data offered to users at no cost which can only be used on specific sites/apps). Despite the growing profile of such services, there is a dearth of empirical evidence on the effectiveness of zero-rated and other mobile data services, making it difficult to develop informed recommendations on their use[2].

Through this research, we aim **to learn more about the availability, use and impact of these zero-rated and other mobile data service models designed to provide access at lower costs.** Using empirical research, we will determine how service-specific, zero-rated, and other new data service models impact Internet affordability and usage in developing countries and in so doing, will inform policy-makers on how best to address such services as part of their overall strategies to improve Internet access.

RESEARCH PLAN

We will uncover *"The Impacts of Emerging Mobile Data Services in Developing Countries"* through a series of short briefs, published at different stages over the course of our research. **The question that our first research brief addresses is: What are the models of mobile data services in developing countries?** The next phases of the project will build upon this initial brief by examining the use and impact of these services, and will look at:

1. To what extent do different types of data plans lead to more people accessing the Internet?
2. What are the patterns of Internet use under these models of mobile data services?
3. To what extent and in what ways do these models impact the provision of local content?
4. What are the alternatives to existing models of data services that could help to drive greater Internet adoption and demand among low-income groups?
5. What options are available to government to support and manage these models, including zero-rated data services?
6. How can these options complement existing initiatives to increase local Internet access (e.g., universal access and service fund programmes)?

1. http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf (Accessed September 2015).
2. Futter, A., and Gillwald, A. (2015) Zero-rated Internet services: What is to be done? http://www.researchictafrica.net/docs/Facebook%20zerorating%20Blogpost%20Final.pdf Accessed September 2015.

We will address these questions through a series of research papers that will draw on national survey data, interviews with key stakeholders, and secondary sources. **Throughout the project, our focus is the user and the extent to which emerging mobile data service plans available can make Internet access more affordable for her**. By focusing on questions of affordability, our work will complement research that examines other aspects — including the legal[3] and human rights implications — important in understanding the utility of emerging zero-rated data services in developing countries.

Our research is limited to a set of eight developing countries across Latin America and the Caribbean, Africa and Asia (the three regions where A4AI currently operates): Ghana, Kenya, Nigeria, Bangladesh, Philippines, India, Colombia, and Peru. These countries all have relatively low levels of Internet access; Ghana and Nigeria have A4AI multi-stakeholder coalitions working to develop and implement policy reforms for reducing the cost to connect. Although we would ideally want to have a larger sample of countries, this group does look at countries from diverse regions and socio-economic development levels.

Our research will look only at mobile phone broadband services[4] for individual customers, as the vast majority of people in developing countries (and in our selected group) primarily use mobile phones to access the Internet[5]. As most mobile phone users in developing countries use prepaid plans, we have also chosen to focus on these plans in our research[6]. Finally, we have limited our review to plans that offer data only, and not those that combine data with voice and/or SMS.

RESEARCH BRIEF NO. 1: MODELS OF MOBILE DATA SERVICES IN DEVELOPING COUNTRIES

UNDERSTANDING AND DEFINING DATA SERVICES MODELS

In order to better assess the potential impacts of emerging data services, we first need to understand the underlying problem that they are all purportedly working to address — unaffordable data[7].

On average, mobile broadband costs in developing countries are twice as much as those in developed countries[8]. As noted in A4AI's 2014 Affordability Report, only 23 of the 51 countries surveyed could claim to have basic mobile broadband services priced at less than 5% of average monthly income (i.e., below or within the target set by the UN Broadband Commission)[9]. For specific groups in these countries — such as low-income persons, those living in rural areas, and women — the costs are significantly higher.

In addressing the cost problem, different service plans and approaches have emerged. These services attempt to alleviate the problem of expensive data by reducing costs and/or imposing restrictions or limits on data use. Therefore, we have assessed the several types of plans available across two-dimensions: (1) the cost of data; and (2) restrictions on data use. As we shall see in practice, data plans often combine costs and restrictions in different ways.

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3. See for example Rossini, C., and Moore, M. (2015). Exploring Zero-Rating Challenges: Views From Five Countries. Washington DC: Public Knowledge. https://www.publicknowledge.org/assets/uploads/blog/Final_Paper-Jul_28-TM.pdf
4. This excludes mobile broadband modems, USB dongles, etc.
5. ISOC (2015) "Global Internet Report 2015 - Mobile Evolution and the Development of the Internet." Internet Society.
6. The proportion of mobile phone connections that are prepaid are approximately from 95% in Africa, 77% in South America, and 82% in Asia (percentages are from the end of 2nd quarter 2015). Source: https://gsmaintelligence.com (Accessed September 2015).
7. There are of course other important costs such as the price of a handset, electricity to use the phone, taxation, etc. which are not considered here.
8. http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf (Accessed September 2015).

THE COST OF DATA

Let us examine this two-dimensional concept in more detail, starting with the cost of data. We begin by reviewing the data plans offered by the top three to five carriers in all selected countries[10]. After reviewing these mobile broadband service plans we have identified four main variations in how costs might accrue to the user:

1. FULL COST DATA BUNDLE

In this instance, the user pays the full cost of the data according to the type of package or bundle chosen. By "full cost" we mean the user pays the advertised price (at the relevant tier) for their data, which can be used to access any site or app. This can also include data purchased through special temporary promotions or discounts. This is therefore the default price that consumers might use to purchase their data, and includes the purchase of specific amounts of data.

For example, according to Orange (Kenya), a prepaid customer can purchase a data bundle ranging from 20MB to 5GB. Alternatively, they can purchase a time-based plan, with no specified data limit[11]. Similarly, Airtel Ghana lists prices for a range of bundles. Both types of plans typically include some kind of restriction, such as the validity period of the data — a point we will return to later on. All carriers we examined across the eight countries studied offer these kinds of plans.

2. SERVICE-SPECIFIC DATA BUNDLE

For plans in this category, a user can purchase a data bundle, which only allows them to use specific apps and access certain sites for a specified period of time. Some data bundles will offer the user an unlimited amount of data within the advertised time period. The user pays for the data at a discounted rate (i.e., cheaper than the full cost). While this can occur in several ways, the exact discount is not always obvious. For example, Etisalat Nigeria offers customers "smartpaks", which provide unlimited access (subject to their fair use policy) to specific sites. One option is the "social me" smartpak, which can be purchased on a weekly basis for ₦300 and provides access to Facebook, Twitter, BBM, Instagram, Eskimi, and "all instant messaging apps." The implication is that the cost for data can be cheaper to access these sites when using the smartpak compared to data under a full cost plan. Etisalat Nigeria also offers a weekly prepaid Internet plan with 50MB for ₦500, which can make the service specific data bundle option (i.e., smartpaks) much more attractive for users interested in accessing those sites.

Service-specific data plans can focus on a range of sites and not just social media. For example, in the Philippines, Globe Telecom offers what it calls "site bundles", such as the "Social20" and "Mail20" daily plans. The latter offers "unlimited access to Facebook, Yahoo Mail, Gmail and Jobstreet."

These types of plans are also available for individual apps/sites. Globe Telecom offers a plan solely for Whatsapp as does Movistar in Peru, while Banglalink (in Bangladesh) offers a daily plan for Viber. When it comes to service-specific data for select apps/websites, a possibly less obvious yet longstanding type of plan is that which offers music and video services through

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9. http://a4ai.org/affordability-report (Accessed September 2015)
10. The top carriers were identified by market share at the end of June 2015. All mobile phone carrier websites were accessed during August-September 2015, and the service plans cited in this paper are accurate for that period.
11. Note that almost all carriers in our sample of countries qualify the term "unlimited" with a fair use policy which states that transfer speeds are reduced after a certain download threshold is reached.

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select sites. For example, Safaricom (Kenya) offers daily and weekly packages to access streaming content on DStv (an Africa-based satellite TV provider), and Tigo (Ghana) offers streaming music packages using Deezer (a music streaming service).

A related version of the service-specific data plan requires that only a certain browser (i.e., Opera Mini) be used to access data. In Nigeria, Airtel offers an Opera Mini Bundle, which claims to offer faster and cheaper browsing while using the Opera Mini Browser. Similarly, Smart Communications in the Philippines offers several plans for both prepaid and postpaid users to surf "all they want" when using the Opera Mini Browser[12].

The variety of plans offering service-specific data bundles across the selected countries is indeed wide, but not unexpected. Mobile phone companies will engage in different marketing strategies to improve their customer base while responding to what they perceive as services that are in demand. Offering additional data services (often at discounted rates) is similar to the range of value-added services (e.g., ringtones, games, news, music, etc.) that were more common prior to the advent of mobile broadband. What is common across most of the service-specific plans mentioned here is that the data is only applicable for use on certain sites or apps.

3. EARNED DATA

In this category of plans, the user receives data in exchange for performing some action (rather than directly purchasing data through a full cost or service-specific data bundle). A typical approach is to offer customers data in return for purchasing services. One of Banglalink's plans for prepaid customers that top up their accounts with a specified amount is to offer B of data for purchase at a promotional rate: 1GB for general use and 1GB to be used for Facebook. Alternatively, the mobile carrier can provide a data bonus at no additional cost once the user tops up their account with a specified amount of funds. In Colombia, one of Claro's current promotions offers customers 15 to 30 days of free Whatsapp, Facebook, and Twitter use, once they top up their accounts with the required amount. In Peru, Claro offers a similar promotion for Whatsapp if the user maintains a minimum balance. Such bonuses can also come from purchasing a handset. Orange (Kenya) offers 2GB of data to customers through the sale of the Klif (Alcatel).

A more innovative approach is to have the user complete certain actions (e.g., watch an advertisement) in return for data. In Bangladesh, Grameenphone announced last year that customers who purchased a Symphony handset and used the Grameenphone app Wowbox would receive 20MB of free data each day. This device runs on Firefox OS and, along with the Klif plan mentioned above, are attempts by the Mozilla Foundation to explore business models that can sustainably lower data costs for the user[13].

While we are primarily concerned with service plans available to users in selected countries, it is worth noting a few options that are not offered directly by the carriers, but still fall under our category of earned data. One example is Gigato — an app that offers prepaid users in India data rebates for using particular apps on their phones for a certain amount of time. An app similar to Wowbox (mentioned above) is mCent, which operates in several countries, including India, Nigeria, Colombia, and the Philippines. Users earn data in exchange for completing various activities via the mCent app (e.g., completing surveys, watching videos, or contributing to other marketing-related activities). Both Gigato and mCent operate by purchasing data in bulk and then offering this in exchange for user participation. The data earned can be used to access

12. The Opera Mini browser uses data compression techniques to reduce the amount of data required for browsing. See http://www.opera.com/mobile/mini/android
13. https://blog.lizardwrangler.com/2015/05/06/zero-rating-and-the-open-internet/

4. ZERO-RATED DATA

Zero-rating refers to services that make certain content or applications available at no additional cost to the customer. The data used to access the specified site/app does not contribute towards the customer's data usage. One difference between zero-rated plans and those reviewed previously is that the user does not actually receive or purchase data beforehand; rather, they are simply not charged by the carrier for accessing a specific site.

Perhaps one of the most well known zero-rated services is internet.org (recently rebranded as Free Basics by Facebook). This service makes available a certain suite of applications/websites under its umbrella app, including Facebook, news and weather apps, as well as apps of various international development organisations (e.g., UN Women) and non-profits (e.g., Mobile Alliance for Maternal Action). The actual suite of apps available varies across countries and is determined in partnership with local mobile phone carriers, including Airtel (Kenya), Reliance (India), and Tigo (Colombia).

Other forms of zero-rating offer free access to just one specific site. These include Facebook Zero, Wikipedia Zero, and Twitter Access. In these cases, the carriers again enter into agreements with content providers to make their sites available to users at no additional cost. The incentives for content providers can vary in each case. For example, Twitter has partnered with carriers to offer Twitter Access for a limited time as part of a temporary promotion (e.g., Airtel Kenya), or to coincide with major events (e.g., the 2015 Cricket World Cup in India), with the goal of increasing its user base. Wikipedia Zero differs slightly in that the Wikimedia Foundation (the organisation behind it) seeks both to increase access to Wikipedia in developing countries, as well as to increase the amount of content contributed by users in these countries. It does not allow carriers to use it for promotional purposes. Facebook Zero, which for example is offered by Robi in Bangladesh, provides users with a low-bandwidth version of Facebook. **Regardless of their aims, as with most service-specific data bundles, zero-rated data can only be used for specific sites and apps**.

RESTRICTIONS ON DATA USE

The second dimension we identified that differentiates how mobile carriers offer data plans is in terms of the restrictions imposed on the user. This is a feature that was mentioned in many of the examples above and we can now be more specific. Restrictions on data use fall into three main categories:

DATA LIMITS: The default option for many plans is to restrict the amount of data that can be used according to the amount purchased and associated fair use policies. These plans do not limit how the data can be used. The main example of this is the prepaid full cost bundles described above.

TIME RESTRICTIONS: This refers to those time limits that are made explicit to the user and can refer to the validity period of the prepaid plan purchased at full cost.

ACCESS RESTRICTIONS: Limitations on the sites/apps that may be accessed with the data. This includes zero-rated services like internet.org, Wikipedia Zero, and Twitter Access.

These restrictions are not mutually exclusive, and some data plans will have multiple restrictions. By combining the dimensions of cost and data use restrictions, we are able to develop a typology of different types of plans and their features. This is particularly useful given the plethora of data plans that exist in the selected countries. Of course other typologies exist, but these generally focus exclusively on zero-rating services or are primarily for developed countries. Table 1 summarises the main types of costs and restrictions associated with data plans, along with several examples.

TABLE 1 – COST AND RESTRICTION CHARACTERISTICS OF DATA PLANS IN SELECTED COUNTRIES

Example of Data Plan						
	Default prepaid plan	Browser specific (e.g., Opera Mini)	Social data bundles e.g., "smartpak"	Bonus data from carrier	Data from app (e.g., Gigato)	Internet.org, Wikipedia Zero, or Twitter Access	Temporary Twitter Access promotion
Cost of Data						
Full Cost	O						
Service-Specific		O	O				
Earned Data				O	O		
Zero-rated						O	O
Restrictions						
Data Cap (subject to fair use policy)	O	O		O	O		
Limited Time (validity period)	O	O	O	O	O		O
Limited to Specific Sites			O	O		O	O

Which restrictions are associated with which plans? Full cost data bundles are limited by the amount of data purchased with prescribed validity periods. Service-specific data plans, on the other hand, restrict time and sites that can be accessed. Apps such as Gigato and mCent, have fewer restrictions than earned data plans from the carrier. Finally, temporary zero-rated promotions are, by definition, more limited than other zero-rated plans. At this point in our project, we do not assess which restrictions are the most important. In later phases of the project we will look at whether, from a user perspective, one type of restriction is more important than another.

As our research and the table above show, **there is no simple trade-off between cost and restrictions**. This is mostly because of the variation within each category. Consider, for example, the differences between browser-specific plans (e.g. using Opera Mini) and social bundles — both are classified as service-specific data but have different kinds of restrictions. Similarly, earned data from carriers can have different restrictions than those from independent apps.

A final point that we address is the frequency with which these kinds of plans are offered in selected countries. This can give us a sense of how many carriers offer each kind of data plan (note that this is not the same as determining the adoption rate of different plans). Figure 1 (below) shows the breakdown for all plans reviewed for each country[14].

14. A note on the methods used for this review. We counted different types of plans based on the categories defined here. Where a plan offers different bundles that vary by size or validity period only, they were counted as the same. Thus, a full cost data plan with options ranging from 100MB to 1GB was counted as 1 plan; similarly, an unlimited service-specific plan for the same set of social media sites that ranged in validity from 1 day to 1 month was counted as the same.

FIGURE 1 – PROPORTION OF EACH TYPE OF DATA PLAN BY COUNTRY

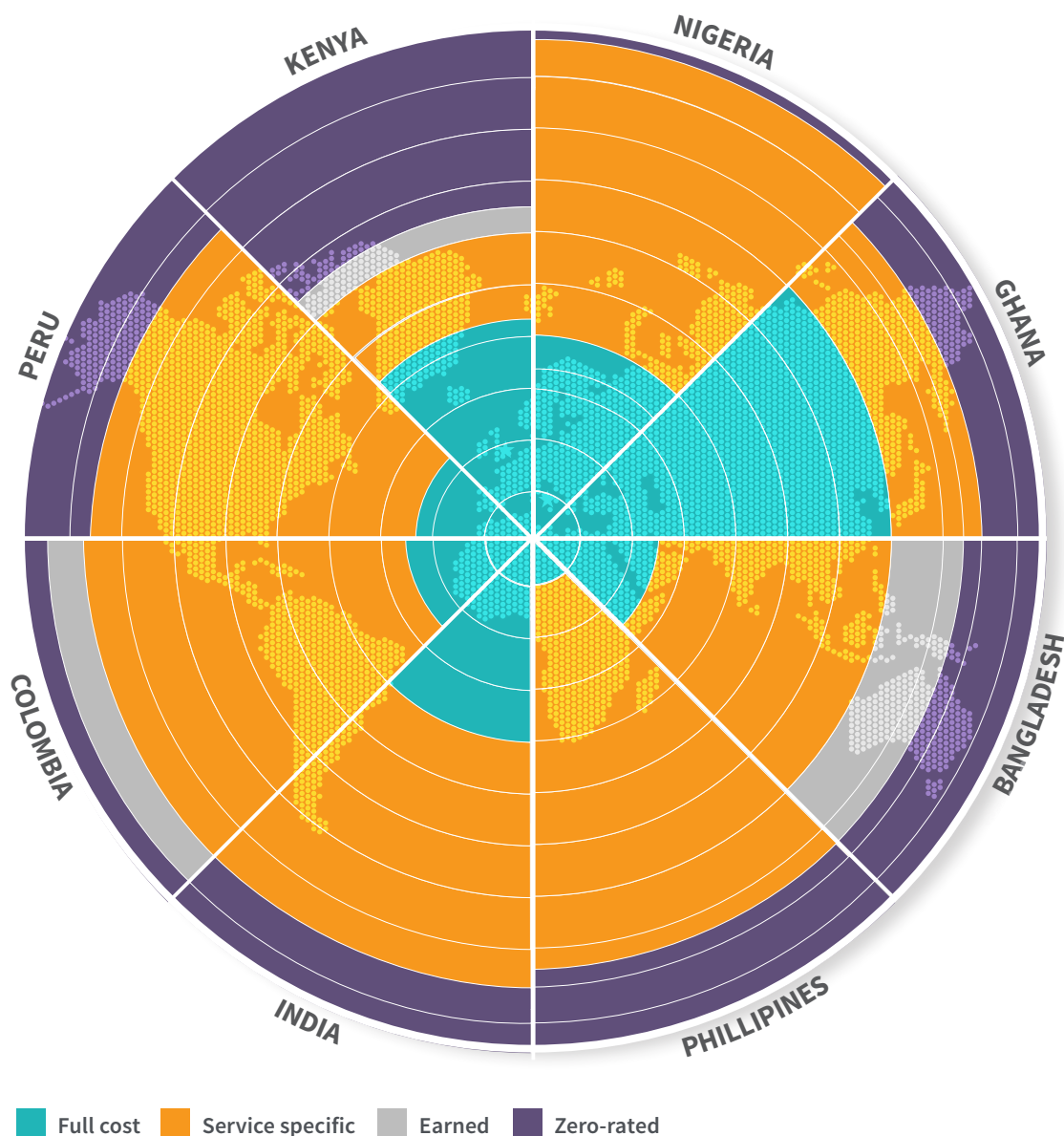Full cost Service specific Earned Zero-rated

Figure 1 is based on a simple count of plans offered by the top carriers in each of the selected countries[15]. As we might expect, full cost plans are offered in all countries studied, but they are not always the most commonly offered. **Service-specific data plans are also offered in all countries and, in most cases, are the most common plans offered (with the exception of Kenya and Ghana)**. Earned data plans are seldom observed; in fact, only three countries — Bangladesh, Kenya and Colombia — had carriers offering such plans. Finally, **zero-rated plans exist in all countries, but there is wide range in terms of the frequency with which they are offered**. For example all the major carriers in Kenya (Airtel, Orange, Safaricom) offer at least one zero-rated service; in contrast, only one carrier in Nigeria offers a zero-rated service.

Figure 2 (below) summarises the total count of plans reviewed, based on the categories we have defined. In total, 181 plans were reviewed — 51% were service specific; 33% were full cost; and 13% were zero-rated plans. Despite the attention that zero-rating receives, service-specific plans (which include similar restrictions to zero-rated plans) are more frequently offered by mobile phone operators.

15. We identified the top 3-5 carriers in each country based on market share at the end of June 2015.

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FIGURE 2 – TOTAL COUNT OF ALL DATA PLANS BY CATEGORY (%)

51%   **3%**   **13%**   **33%**

Full cost   Service specific   Earned   Zero-rated
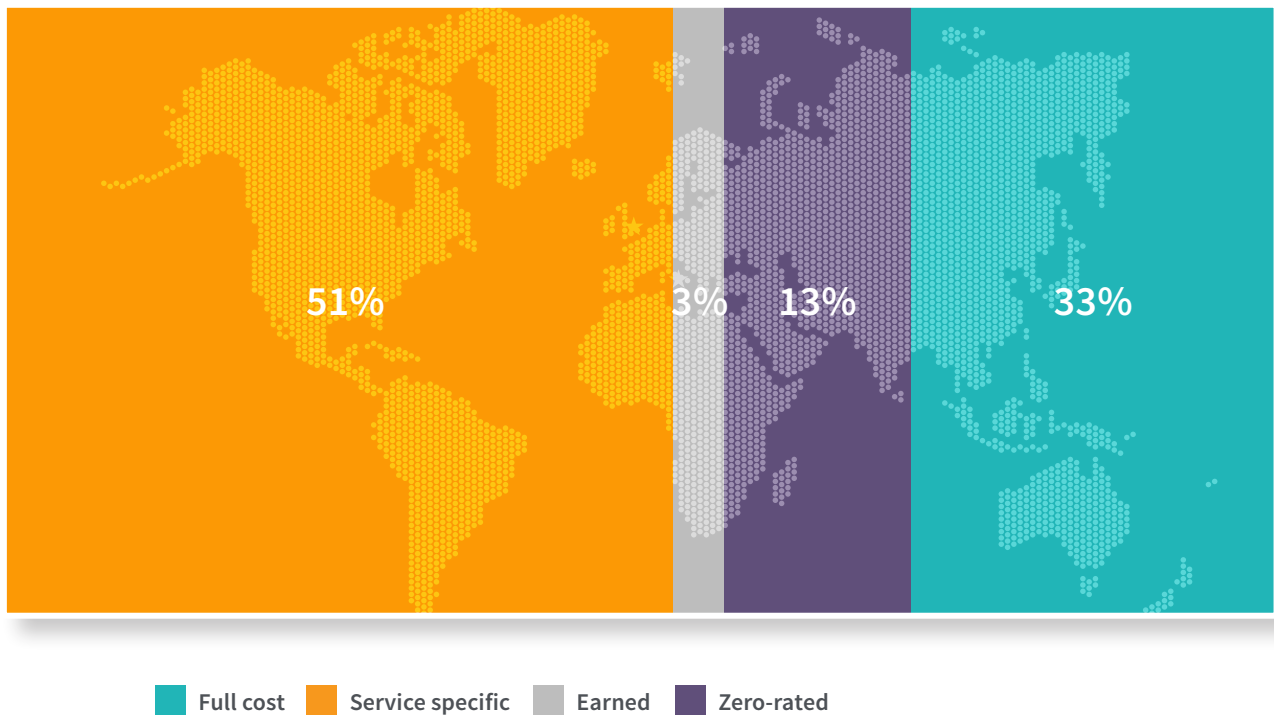
SUMMARY & NEXT STEPS

In addressing the question of what kinds of data plans are available in selected countries, we first reviewed the actual service plans offered by the major carriers in each country. We then defined the plans in terms of two broad categories: (1) cost, which included full cost, service-specific, earned, and zero-rated data plans; and (2) data restrictions, which looked at the data caps, validity periods, and limitations placed on the sites/apps that could be used. Based on this classification, we noted that even plans with the same cost classification could have different kinds of restrictions (e.g., some service-specific data plans were limited to certain sites and others were not).

Across countries, there were differences in the types of the plans most frequently offered. Service-specific plans were the most common in all but a few countries, while earned data plans or apps were the least commonly offered. **Across all categories, service-specific plans and full cost plans were the most frequently observed.**

While primarily descriptive, this analysis is important as a first step in our research. The broader goal of the project as noted earlier is to address questions related to the impact of these kinds of data plans in developing countries. As such, we can now use the typology developed here to help answer questions around the impact of these plans. In the next phase of the project, we will conduct national surveys of mobile phone users across our eight selected countries. These surveys will allow us to determine how many people actually subscribe to the different categories of plans; examine patterns of Internet use for different categories of users; explore the perceived importance of restrictions placed on these plans; and understand other impacts at the user level.