



# Mobile Data for Development

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*Earlier this year, Cartesian released a study written in collaboration with the Financial Services for the Poor team at the Bill & Melinda Gates Foundation, reviewing the opportunity to use data generated from mobile networks as the basis for programs helping low income individuals. In this viewpoint we review the opportunities for mobile operators to collaborate more closely with development groups and academics to more broadly leverage mobile data sets for development projects.*

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## Introduction

Service providers, regulators, academics and members of the development community have the opportunity to work together to develop initiatives that allow for more systematic access to mobile data to support programs targeting the world's poorest people. These objectives can be accomplished while protecting customers' rights to privacy and observing personal data protection requirements.

We evaluated these opportunities in a recent study conducted with the Bill and Melinda Gates Foundation. In the process of our study we interviewed more than 50 operators, technology service providers, regulators, banks, academics, and industry associations to explore the following key questions:

- To what degree are mobile services used by poor populations in a selection of countries around the world?
- What is the range of data that could technically be accessed from mobile networks by third-parties and what are the technical and business obstacles to gaining access?
- What programs and initiatives have already been completed using access to mobile data and what future opportunities exist to use mobile data in support of development efforts?
- What are the rules and expectations regarding privacy and data protection and how can data practitioners use anonymization and other techniques to ensure user privacy is maintained?

Our research demonstrated that a broad range of opportunities exist to leverage mobile data for development efforts, with a variety of initiatives underway in different parts of the world at any given point in time. However, the vast majority of cases where mobile data has been used in development efforts have been in one-off, single-purpose scenarios, with limited focus on establishing long-term and repeatable processes. The various stakeholders are still at the forefront of exploring the realm of what is possible; future success will depend on increased transparency and cooperation among a range of stakeholders in order to develop an environment of more uniform and sustainable data availability within and across countries. Common frameworks and experienced facilitators can surface key issues, align stakeholders, and accelerate decision making in order to unlock these benefits for those in need.

## Mobile Adoption and Usage Is Significant in Low Income Populations

We were struck in our research by the breadth of usage of mobile devices by low income populations in a range of countries. One survey found that between 67%-85% of adults living on less than \$1 a day in five low to middle income African countries owned or had access to

a mobile phone.<sup>1</sup> As device costs fall and mobile operators seek additional growth in emerging markets, we expect these penetrations to increase even further.

The ability of mobile communications to directly improve the lives of people of all walks of life has been well documented. The perceived utility of mobile devices is so significant that 1 in 5 low income customers in one country reported forgoing a regular expense, usually food, in order to pay for phone credit.<sup>2</sup>

This data point speaks volumes regarding the direct economic and social value placed on these services by poor consumers. In addition to social connectivity, users find their mobiles indispensable to coordinate work and trade of goods and services. These benefits are tangible and direct and represent the core of the mobile value proposition for these customers.

However, these examples also speak to the obligation mobile operators have to support programs to enhance the well-being and economic prosperity of these low income customers, not only as part of general social corporate responsibility initiatives but also as a way of furthering the ability of customers to afford and engage with mobile services.

### **Mobile Data Enables a Broad Range of Development Programs**

Many mobile operators are learning that, in addition to the direct value accruing to low income users of mobile devices, there is an additional opportunity to create indirect value for these mobile users (and in some cases for other low-income individuals who are not mobile users) through the appropriate use of mobile data in projects to improve public health, provide access to financial services and to provide emergency services. These positive externalities can only be unlocked by sharing anonymized data with trusted third parties in order to execute development projects.

There have been a broad range of demonstration projects in this area, and the full range of concepts is only beginning to be explored. There have been compelling examples of mobile data being leveraged to direct the provision of disaster relief, provide microcredit and mobile financial services, measuring population movement in reaction to economic shocks, and tracking the spread of infectious disease.

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<sup>1</sup> Gallup 2013, Bill and Melinda Gates Foundation

<sup>2</sup> Crandall et alia., Samarajiva

**Range of Mobile Data Development Use Cases**

Program Area	Demonstrated Use Cases	Example
 <b>Financial Services</b>	Mining social network information to determine optimal agent location	
	Monitoring personal budget and expenses for developing credit profiles	
	Predicting purchasing intentions of individuals from real-time location tracking and regional trends	
	Generating financial profiles of poor people with no access to traditional financial services to offer banking services	
 <b>Economic Development</b>	Monitoring and modeling population movement in the wake of natural or economic shocks	
 <b>Health</b>	Linking human mobility and connectivity patterns with spatial HIV distribution	
	Providing epidemic surveillance by mobile text messaging services	
	Launching targeted disease containment and information strategies in country-wide epidemics	
 <b>Agriculture</b>	Developing financial identities with recharge history and subscriber data to offer microinsurance to protect farmers against drought	
 <b>Urban Planning</b>	Analyzing cell phone data to study intercity travels/traffic to better plan and reroute public transportation	
	Conducting origin-destination analysis for transportation planning such as new metro line and multimodal route coordination	

Source: Cartesian

These observed use cases represent only a sample of what could be possible and have often only been implemented in single areas, in response to specific events, or as trials. Improved frameworks for collaboration and data sharing will need to be developed jointly by researchers, service providers, regulators, and other stakeholders to expand initiatives in these areas.

**Mobile Data Is a Personal Asset**

While the opportunity to leverage mobile data for development goals is apparent, and the use cases have been validated, it is critical in any one of these projects that data protection and privacy rules are observed, and customers treated in a fair and transparent fashion. We found in our study that the state and sophistication of data protection regulation varies dramatically across countries, ranging from nearly non-existent to very stringent. Across the

board, data protection rules continue to evolve as the general public and regulators understand the power of mobile data and the risks of misuse. Some multinationals aim to mitigate the potential risks brought about by these regulatory uncertainties by applying the generally more stringent guidelines from their home markets (e.g. the EU) to other markets, including those that lack local regulations or enforcement.

While the regulatory environment is still in flux, our conversation with mobile operators revealed a growing consensus around some themes as regards data protection and privacy principles:

- 1) Mobile data fundamentally belongs to the mobile customer with the operator as custodian and rules and preferences regarding confidential personal data sharing need to be respected and observed.
- 2) Personally identifiable data can rarely, if ever, be shared outside of the mobile carrier (where it can be leveraged to enhance the services and benefits the customer has subscribed to) without the specific consent of the customer, but anonymized or aggregated data can be shared with third parties in certain instances.
- 3) Mobile data can be made available for development projects and social programs if that data is properly secured and anonymized and this may be more often allowable in the case of public interest or scientific projects.

The most important threshold to respect when developing initiatives in this area is the implicit acceptance of the mobile user. Public opinion in this area is evolving quickly and customers are simultaneously more willing to share personal data for direct and indirect benefits and also more guarded and suspicious regarding how companies, governments and other entities use their data. All programs in this area need to not only observe privacy and data protection rules, but also be mindful of customer perception and the importance of maintaining a trusted bond with the customer.

### **Developing Frameworks for Successful Collaboration**

Mobile operators and government stakeholders have an interest in working with the development community to unlock the power of mobile data to improve the lives and the economic circumstances of their customers and citizens. In order to leverage the power of mobile data sets, trusted relationships between operators and researchers must be formed. Complex issues of privacy must be confronted, including the very volatile relationship the public has with the concept of having their anonymous personal information utilized and shared, even for unambiguously constructive objectives.

In the end, success in using mobile data to enhance development initiatives will depend on the cooperation of all parties involved: governments, mobile operators, researchers, and mobile phone users. We see an opportunity to accelerate these efforts over the next several years to build on the promising early efforts of so many leaders in this evolving field.



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Cartesian has deep experience in advising service providers, regulators and other stakeholders in developing successful project and policy frameworks in the area of Mobile Communications. Our data analysis capabilities combined with our communications subject matter expertise and focus on furthering the goals of Mobile for Development make us indispensable partners in developing and executing programs in this growing area.



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