

MOBILE FOR DEVELOPMENT IMPACT

MAKING THE MOST OUT OF YOUR DATA IN
MOBILE FOR DEVELOPMENT

KEN BANKS AND ADAM WILLS - MARCH 2015

Acknowledgements

M4D Impact extend a special thanks to **Ken Banks** for leading this reseach engagement and preparing the final report. Our special thanks also go to **Finn Richardson**, **Peter McNally**, and **Ryan Webb** for preparing early drafts of this report, and conducting invaluable analysis and foundational research.

About

GSMA Mobile for Development Impact supports the digital empowerment of people in emerging markets through its Mobile for Development resource. It is a central platform of data, analysis and insight used to inform investment and design decisions for mobile services. Our work is freely accessible through support from Omidyar Network and in partnership with The MasterCard Foundation at gsmaintelligence.com/m4d



Contents

1. Executive Summary	4
2. M4D and the problem of scale	7
Mobile for development in emerging markets	7
The problem of scale.....	7
The Data Opportunity.....	7
Cross sector tools and learnings.....	9
A lack of consensus	9
Common success metrics	10
Variability in definitions of success.....	11
3. M4D Data Use - Landscape of Supply & Demand	12
Survey respondent sample	12
Data that is currently being collected	12
Existing data use.....	14
Barriers to data use.....	18
4. Main Findings and Conclusion	20
Key takeaways	20
Key recommendations	20

Executive Summary

This report seeks to frame and assess the current landscape of mobile phone and other data usage by mobile service providers operating in emerging markets that serve underserved customer segments, otherwise termed Mobile for Development (M4D) services. There is a growing interest in this area of M4D as the data captured by the mobile platform offers visibility on many aspects of a mobile service's operations. This data can be used to evaluate the performance of a service, create recommendations for improvements that drive scale, and create a richer picture of underserved consumers who are otherwise hard to reach and for whom little data currently exists. The key finding of our research and analysis is that mobile service usage data is largely a “missed opportunity” across the M4D sector and that more can – and should – be done to support organisations in this area. This will enable them to make better use of their data as well as advance the knowledge base of the wider industry in the field of data analytics applied to M4D services.

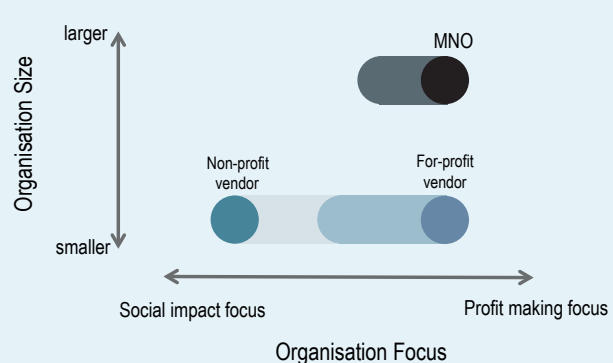
More precisely, the report focuses on data organically generated through mobile deployments, e.g., the time and transaction value of a customer using a mobile financial service or the location and time of a farmer who activates a mobile insurance product. We believe that this type of information can be exploited to support M4D services in reaching scale, though by no means claim it is the silver bullet for doing so. Any notion of scale must be underpinned by a concept of ‘success’. Appreciating that definitions of success are not uniform across organisations and sectors, we frame the report with an introductory discussion on the varying definitions of scale and success metrics in M4D. Our later analysis is based on survey responses and in-depth conversations focused on existing mobile data usage within M4D service providers, where we consider the most promising opportunities and persistent barriers in data use across the group.

Spotlight – “M4D Service Providers” an expansive definition

What do we mean by the term “M4D Service Provider”? In fact, there is a range of organisations involved in delivering mobile services to underserved users in developing markets, and for our purposes we divide these into three key types.



Who does this cover?



MNOs – or “Mobile Network Operators” are larger commercial organisations who have direct relationships with millions of mobile subscribers in a given market, likely own the mobile telephony infrastructure, and will prioritise M4D services that have potential impact on their bottom line

Non-profit Vendor – often synonymous with “Non-Governmental Organisations”, these are generally small in size and driven by a social mission, likely reporting on social metrics to donor funders. They may have some

Example – there are now 149 mobile money services led by MNOs across developing markets. These services typically consist of a dedicated mobile money team within the operator that handle back office functions, maintenance of a healthy agent network, fraud and risk management, etc.

Example – a few technical NGOs work through third party gateways across markets, providing information in areas including Health, Agriculture and Gender across a range of mobile channels including SMS and IVR. The NGOs’

technical expertise in-house to develop mobile products and most likely work with third party gateways to access the mobile network to deliver a service.

For-profit Vendor – Many organisations in this category are described as “social enterprises”, working on a for-profit model with a clear social objective. They are typically small and entrepreneurial organisations in nature, and may approach MNOs with business propositions that can impact bottom line. They are more likely to have sophisticated technical expertise in-house, and may access the mobile network through intermediary gateways (though often seek strategic direct relationships with MNOs over time).

primary focus is to provide access to critical information to underserved mobile subscribers to stimulate positive behaviour change, though services typically make no revenue from their users.

Example – A range of ‘Pay As You Go’ solar providers work on a for-profit model and are able to partner with local MNOs to assist in the distribution of their solar products. Since the customer pays for the solar power via the MNO’s mobile money service, this in turn drives transaction volumes (and thereby revenues) for the MNO’s mobile money service. These organisations seek to create impact by providing affordable and accessible renewable energy, yet operate on a clear B2C model that drives revenue.

This tri-partite distinction is basic but outlines the three key organisation types that typically lead on the delivery of a given M4D service. It is important to stress that these organisations have very different strengths, assets and cultures. However, all may contain teams of people that are responsible for the day-to-day delivery of the M4D service, and as such we group them under the term “M4D Service Provider”.¹

In this report, the term ‘M4D service provider’ covers a wide range of organisations engaged in delivering M4D services, including Non-Profit Vendors (often equated with NGOs), Mobile Network Operators (MNOs), and For-Profit Vendors who offer mobile-enabled services with a focus on social impact but also revenue generation (see above spotlight for more detail). Though these services span a diverse range of sectors – from mobile financial services (MFS) to mobile enabled utilities products – we have observed that almost all want to increase their use of data and often connect such ‘use’ with the ability to better diagnose and overcome barriers to scale, refine existing value propositions to customers, as well as define new value propositions. However, most organisations surveyed lack several key resources to undertake such analytics.

We conclude that there is an opportunity for the wider M4D industry to invest more in supporting M4D service providers (i.e. the wide net of organisations spanning from NGOs to MNOs, and across sectors from MFS to mobile utilities) to better use their data to achieve scale.² While the differences in size and culture of these organisations may be dramatic we see a common pattern across our survey respondents: they claim to have a sufficient form of existing data supply, wish to capitalise on their ‘unused’ data, and report a lack of funds, resources, tools and appropriate frameworks as critical barriers to using such data.

Key takeaways

- **Data supply:** While there is variation in the amount, quality and type of data collected by M4D service providers, our research shows that most M4D service providers already collect forms of data that could be used to improve service design. For example, 67% of respondents state they collect customer transaction data; 48% collect location data of some kind.³

¹ We note that oftentimes these organisations can work in partnership under the same product heading, for example there exist NGO-MNO partnerships, and for-profit-MNO partnerships that co-brand services

²When thinking about the MNO, this investment would likely equate to resources in the dedicated team that deals with the M4D product

³ By ‘collection of data’ we mean that organisations have setup systems to capture data on an ongoing basis. For example, while non-MNOs may not always have the means to collect location data from basic phones directly, they may set up agreements with MNOs (either directly, or through 3rd party gateways) that will allow them to access to such data, in this instance we would say the non-MNO is ‘collecting location data’.

- **Analytics demand:** Although M4D service providers do use service data analytics to improve services, they want to do much more: for example, 63% said they intended to use it to predict customer behaviour; 46% said they intended to use it for customer segmentation. If M4D service providers had more resources and support to better use the data they already possess, it could help drive important service improvements across a range of areas.
- **Barriers to using data:** Despite this intention, there are significant knowledge and resource gaps in M4D service providers regarding how to best realise the data analytics opportunity: lack of time or funds was the single largest barrier to making full use of existing data, but lack of tools and appropriate frameworks or approaches to analysing data were also highlighted by 56% of survey respondents as the most significant barriers.

Key recommendations

For M4D service implementers

- **For all organisation types:** Incorporate data analytics into M4D service/project planning and execution from the beginning of projects, determining what can be measured, and which metrics will be important success factors to consider in driving scale
- **For MNOs with extensive access to network data & non-MNOs with access to relevant network data:** create work streams that investigate the value of existing data, especially transactional databases and location data, to build out critical business intelligence functions that help understand how to drive high value customer segments and optimise service performance
- **For non-MNOs without access to relevant network data:** review any existing agreements with third party gateways/aggregators to determine whether such data is obtainable through existing service line agreements (e.g. outbound/inbound SMS transactional data supplied by a third party); in instances where relevant data cannot be obtained this way, consider a separate negotiation with the MNO or intermediary, where a business case should be presented that outlines the value to all parties for sharing the specific data in question ⁴

Rationale

We believe those who pro-actively invest in these functions now will increase the commercial and social impact of their services in the longer term and out-perform their counterparts – all too often the investment in such analytics is 'put off' in favour of more pressing priorities, but organisations who follow this logic risk putting off the investment indefinitely.

For funders of M4D services/projects:

- Include financial and technical resources as part of investment packages to M4D services, helping to close the knowledge and resource gaps currently preventing many M4D service providers from making best use of their data
- Invest in work streams that aggregate findings from mobile enabled investees across sectors with respect to their data, which can contribute to tools, frameworks and approaches that can accelerate the success of 'mobile technology based' services across the wider M4D space.

Rationale

We believe those implementing well designed support functions for investees will see higher return on investments, both in the longer term impact of the organisations themselves, but also in the shorter term lessons which will be of value across investment portfolios. In addition, our experience shows that supporting investees in this way can create a strong channel for knowledge sharing across funding and recipient organisations that serves to increase the value for both parties

⁴ It is important that this request be in line with regulatory market requirements (e.g. customer location data generally cannot be shared without the customer's consent). For further resources on data privacy go to <http://www.gsma.com/publicpolicy/mobile-and-privacy/design-guidelines> & <http://www.gsma.com/publicpolicy/mobile-and-privacy/mobile-privacy-principles>

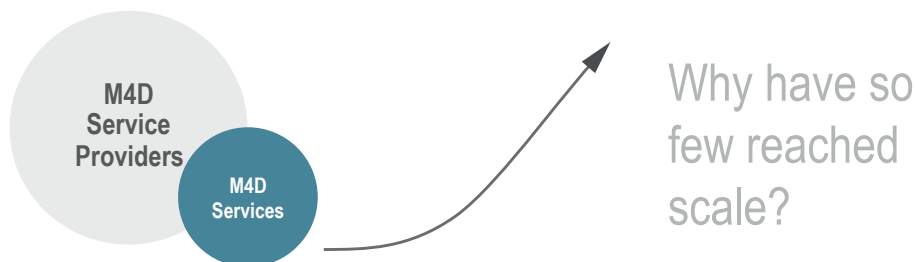
M4D and the Problem of Scale

Mobile for development in emerging markets

Today, the mobile phone holds the power of ubiquity. Across the developing world 2014 figures suggest that 44% of people now actively subscribe to mobile services.⁵ Access to mobile services in the developing world has outpaced the rate at which much of the population are gaining access to other basic services such as electricity, sanitation, and banking. As the technology that is becoming the most widely accessible, including to those at the bottom of the economic pyramid (BoP), we have seen an increasing focus on the role mobile technology can play in improving social, economic and environmental development in emerging markets. As previously-unconnected populations gain access to mobile technology and the capabilities it provides, the lives of these populations will fundamentally change. A simple increase in access to information at a faster pace, from new and multiple sources, is highly disruptive, particularly for those previously starved of the most meaningful information. Affordable mobile phones and the opportunities they provide for the poor will be one of the most dramatic, game-changing technologies many will experience.

The problem of scale

Achieving scale is often quoted as one of the biggest challenges for many technology start-ups, and in M4D it is no different. Despite the sector enjoying continued growth in the number of products and services launched over the last few years, scaling up these services still proves to be a challenge. Sustainable business models also continue to be elusive for the majority.



Many M4D services are developed by traditional humanitarian and development organisations, who are often innovating outside of their core competencies. As a result, many are forced to develop new competencies and forge new partnerships to deal with complexities such as product development, and launching and scaling products and services.

In addition to this, M4D projects can find themselves disadvantaged by the time lag between fast-paced innovation processes and the comparatively slow, traditional validation process based on long, costly and complex systems for formal testing and development that are the mainstay of donor funded projects. As a result, many innovative projects lack the longer-term fiscal and resource investment needed in order to achieve scale, despite the huge opportunity mobile presents.

The Data Opportunity

Aside from the remarkable reach of mobile, it represents another significant opportunity insofar as mobile platforms capture large amounts of data organically and provide visibility on many levels of a project's operations as well as customers' behaviour. This data can be used to evaluate the performance and to inform recommendations of a given mobile service. In general, this is extremely valuable for organisations offering products and services over mobile platforms, and those targeting under-served customers in emerging markets are no different. Our research confirms that many of these latter organisations seek support to better use the data resources they possess.⁶ It must be acknowledged, however, that the

⁵ GSMAi. Figure is total subscribers (accounting for multiple SIMs counting per unique user) in the market divided by the total population at the end of the period, expressed as a percentage.

⁶ The GSMA's wider Mobile for Development team has provided bespoke support to M4D service providers across sectors, from Mobile Money to Mobile Agriculture.

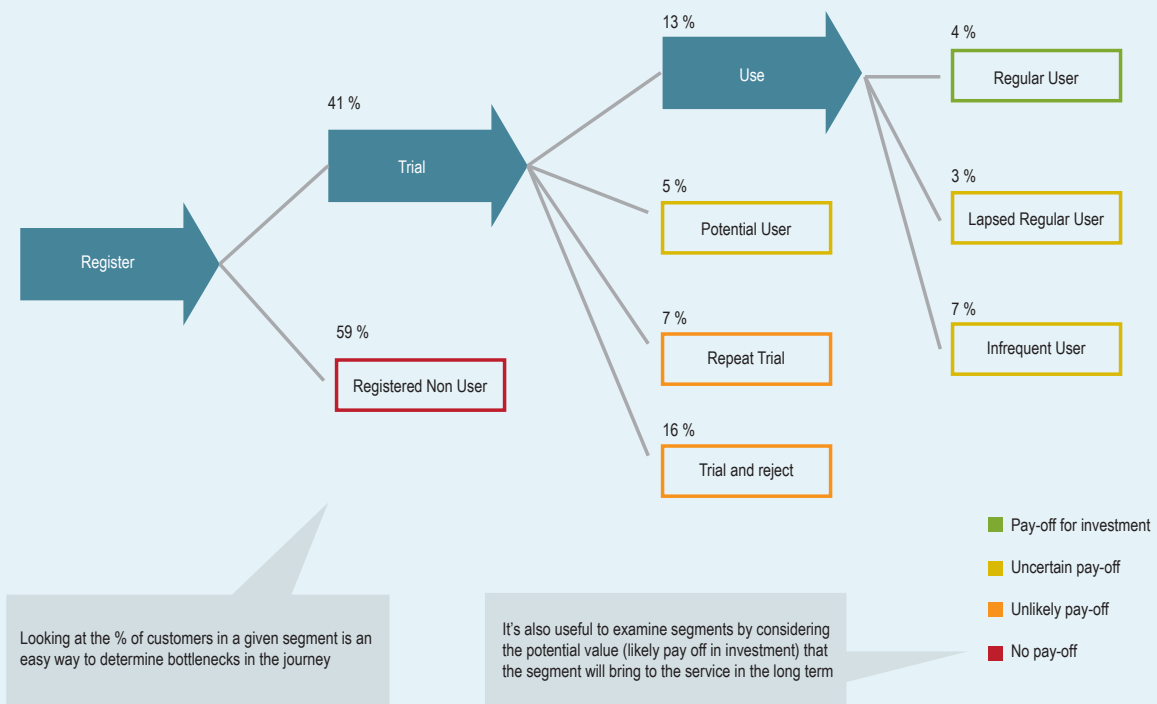
value of available data represents only one factor in a complex network of factors that influence a project's potential, ability, or inability to scale. Better use of data is only one piece of the puzzle, and is not the silver bullet to solving issues in marketing and distribution, back-office operations, and so on.

Spotlight – Replicable approaches for M4D services for examining customer behaviour around registration

Effective data analytics in M4D should prioritise the most pertinent business intelligence questions that providers face in their mission to scale services. M4D services across sectors often face similar challenges, despite working with different service delivery models and value propositions. One example of this arises around the point of customer registration, often a critical part of the customer's journey towards use of any M4D service (be it for 'Know Your Customer' requirements, or simply to capture demographic data critical to the service's delivery).

Mobile Agriculture

Marketing a service may produce a healthy increase in registered users, but how many of these users turn into valuable and regular users of the service? Data from an anonymous operator registration process is presented in the figure below:



The data highlights a significant bottleneck - over half the user base has not tried the service yet. This requires further investigation, especially given the relative value of the usage segments (e.g. 'registered non-users' who have never used the service and generate no revenue, to 'trial and reject' users who use it once and never return, all the way up to 'regular users' who actively used the service in the last 90 days and represent valuable customers). It is not clear why over half the user base has not tried the service, but one suggestion would be to drive customers to use the service at the point of registration.⁷

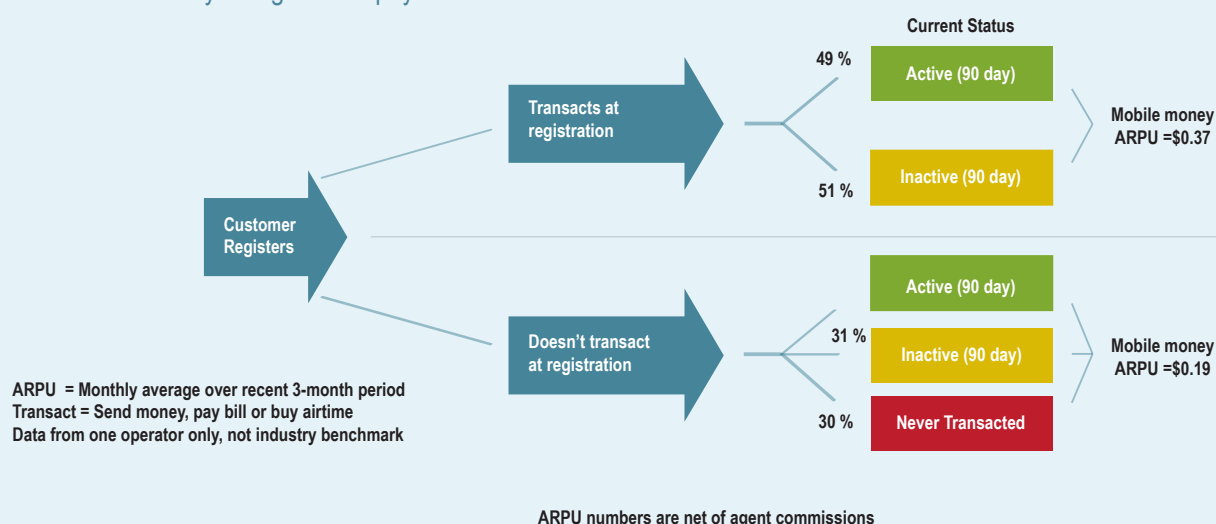
Findings from this work show a demand from organisations in better using existing data, but more importantly demonstrating the replicability of certain methods across sectors in the M4D space. For example, the analysis of customer usage data to segment customer behaviours and gain a more nuanced picture of a service's user base. This is no surprise given the extensive literature that already exists in the technology start-up space outlining methods such as customer segmentation, cohort analysis and so forth. Such methods readily apply to a wide range of businesses. Here, the GSMA has developed a 'customer journey framework' to provide insights and recommendations to improve activity of the customer base. While we look to test and adapt this approach with more service providers, there is a need for research that assesses the potential for replicability of these kinds of methods within the M4D sector. Exploring the present and potential future landscape for data use is also crucial

⁷ See "Mobile user analytics" by Adam Wills

Another example in mobile money clarifies the value of implementing the above suggestion in another service scenario, as well as highlighting the value of replicating similar analytical methods across sectors.

Mobile money

Customers who have a positive experience at the point of registration – perhaps a sales agent who took the time to thoroughly explain the service – might be encouraged to transact on that same day. Does this extra effort to encourage transaction on the day of registration pay off?



This data reveals a stark difference in future activity between customers that transact at the point of registration and those that do not. Customers who transact at the point of registration are more likely to be future active customers (26% more likely) and produce significantly higher mobile money average revenue per user (ARPU) (95% higher) than those that register without transacting.

To understand this phenomenon, consider a customer that walks away without transacting. Perhaps after a few months they have forgotten how to access the service, or even more likely, can't remember their PIN. Suddenly there is a barrier to usage that did not exist at the point of registration. It should be no surprise that 30% of these customers are lost and never transact.⁸

Cross sector tools and learnings

The above examples (see spotlight) highlight how similar tools and data can be used to diagnose and support recommendations across different service types (from mobile agriculture information services, to Micro-Finance Services). We must be careful not to generalise findings across these sectors and service types without justification, but there is nothing to stop us replicating analysis approaches and methodologies. In fact, the cross-pollination of insights generated in this way would likely provide deeper clarity around where service challenges and solutions to overcome them are similar or dissimilar across sectors.

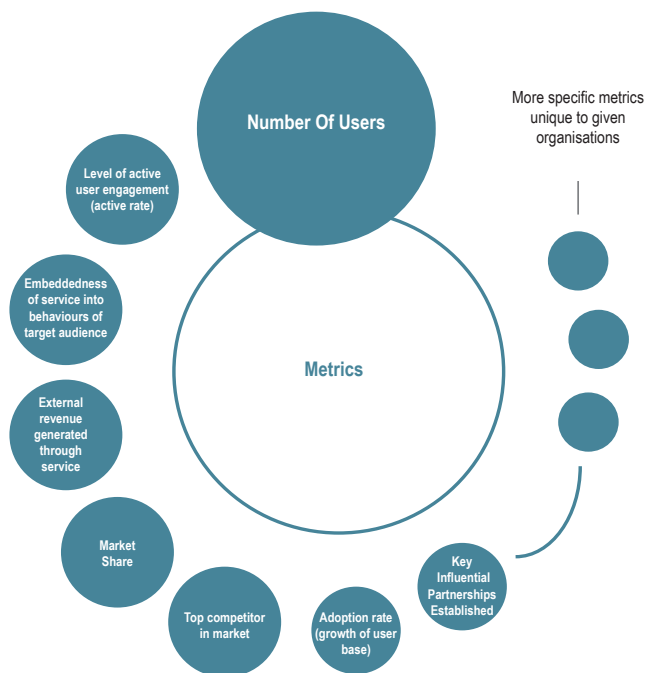
A lack of consensus

Before we examine the picture of data capture and usage across M4D service providers, it is important to remember that the value of data analytics can only follow from clear “business objectives” or “conditions of success.” There is a diverse range of definitions of ‘success’ among M4D service providers and projects that underpin the varying targets for scaling services. Success metrics range from number of users, to revenue and market penetration, to markets reached, but even these seemingly straightforward metrics are open to interpretation.

⁸ Extract taken from analysis by Philip Levin, initially published as a blog post on the GSMA Mobile Money for the Unbanked website on August 29, 2013.

Common success metrics

Given the importance of understanding different success metrics, comprehensive interviews with M4D professionals and thought-leaders were conducted. In relation to their own projects, we asked what their definitions of success were:



These examples are derived from interviews with M4D Organisation personnel across sectors. Bubbles represent relative priority across respondents based on answering frequency.

Figure 1: Common success metrics for M4D service providers

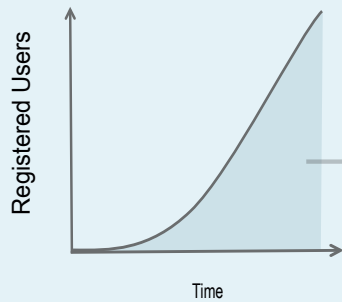
This array of success metrics taken from just a handful of M4D service providers highlights the lack of consensus on how to measure 'success.' It is fair to conclude that the more commonly cited metrics, such as number of users, are often given universal status not because they are the most exhaustive or accurate metrics for success, but simply because they are the most obvious and adhere to more universally 'agreeable' numeric metrics. While for many M4D services bigger is better with user numbers, this metric can lack sufficient depth to capture the meaningful impact of a service, which could remain superficial despite appearing to be widely used.

Spotlight – Metrics 101: Vanity metrics

A **vanity metric** is a metric that will likely make you feel good, but will not itself lead to any clear decision as to how to improve your service.

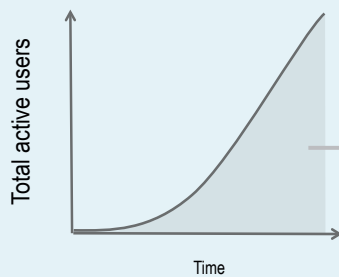
Example vanity metrics:

- **“Registered users”** is one of the most obvious examples. This number is (generally) cumulative, and tells you nothing about the quality of the users you have, or even the growth of these users over time (% growth in user base is a bit better, but still tells you nothing about the quality of customer)



Are these users good or bad for your service?

- **“Total active users”** is a bit better as you have built in some notion of quality (e.g. engagement in a 90 day period), but this number will still increase cumulatively over time and graphs that move ‘up and to the right’ are not helpful in clarifying what changes should be made to the service to improve it.



these users should be good for the service, but what changes should you make to the service next month to get more of them?

Basic guidelines for defining metrics that underpin more robust notions of success (and then scale) are listed below:

- **Use a comparative ratio** – compare the metric with other time periods, user segments and so on. Ratios are inherently easier to compare than other metrics.
 - E.g. 90-day active rate – returns a percentage of customer base which can be applied to subsets of users as well as specific time periods.
- **Ensure metrics are understandable and behaviour changing** – the metric should be aligned to your goals, be understandable to everyone in your organisation, and prompt people to act and change their behaviour.
 - E.g. Well-designed experimental metrics can fall into this category - Suppose you want to test the efficacy of offering three initial free pieces of mobile content to drive greater customer usage of a mobile agriculture information service. Consider the percentage increase in 90-day active customers from a test and control group of users, one group who got the free content and the other who did not. Agree in advance that you want to see a 30% increase to cover your return on investment for the test group. If you hit 30% then you implement the change for all customers, if not, you do not alter the service offering.

When M4D service providers think about scale they must ensure their metrics are underpinned by robust measures they can stand behind. After all, an impressive sounding user base of 5 million, of which 5% are active, of whom a tiny fraction (<0.2%) exhibit the behaviour expected (e.g., acting on information appropriately) will result in less than 500 individuals doing what ‘was expected’. The magnitude of this difference from the initially reported user base is a sobering reminder to guard against vanity metrics.

Variability in definitions of success

With these considerations in mind it is necessary to accept – for the time being – variability in definitions of success as an inescapable part of the M4D world, and to maintain commitment to helping projects meet their own benchmarks for success, maximise their scale and impact. There are a number of resources that, if managed correctly, can greatly help with better design of a service to maximise its impact, and reduce obstacles to service uptake. We see great value in the user data organically generated by, and captured through, the mobile platform that can provide insights into service operations and inform better design and delivery of a service. However, our industry insights show us that many M4D deployments lack the resources required to get the greatest value out of that data. This is one problem we can help to solve.

M4D Data Use - Landscape of Supply & Demand

Survey respondent sample

Since mobile technology platforms inherently generate data by tracking and documenting each mobile telephony interaction as a data point, it is often assumed that all organisations that deploy mobile services have a wealth of data at their disposal. This may not always be the case. The scope of this report does not include a discussion of the important issues of data privacy; however, resources to explore this necessary question are listed below.⁹ In addition to privacy restrictions, there will always be a number of data points not collected by default, and where additional data is available, some projects may not know how to access it or, most importantly, what to do with it. We surveyed a wide range of organisations within the M4D industry in order to assess existing data use and to determine the demand for data analytics and support: what kind of data (if any) do they collect, what do they do with this data and what do they wish they could do with it? We wanted to understand the challenges that they hoped to overcome through better use of data, and the obstacles that were stopping them from better making use of it.¹⁰

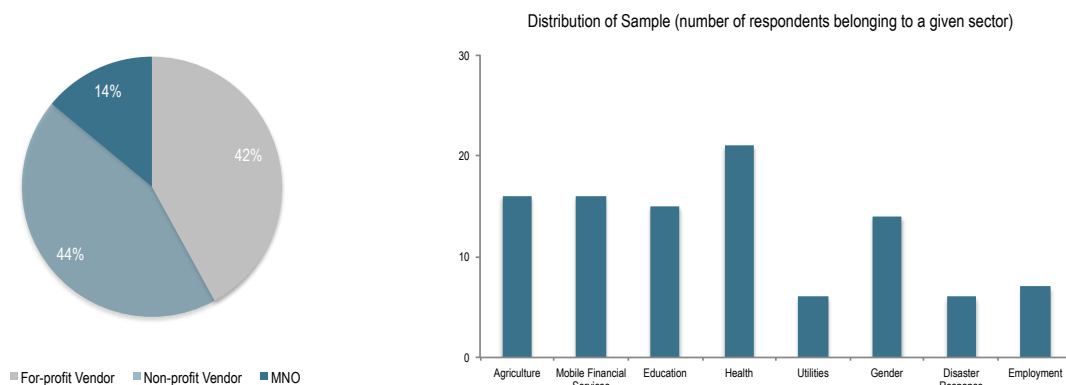


Figure 2: Distribution of respondents segmented by organisation and by M4D sector respectively

Figure 2 shows the distribution of our survey respondents in terms of organisation type.¹¹ Breaking down the sample further, there is a healthy mix of different mobile service offerings across sectors. This is useful in order to consider patterns in data usage across sectors as opposed to allowing practices from one given sector distort findings.

Data that is currently being collected

We categorised five different types of data, at a high level, in which M4D service providers were likely to be interested and already collecting.¹²

- **Customer Transaction data** - records a time and relevant reference data for a particular customer transaction record
- **Marketing data** - records timings and relevant reference data about marketing campaigns
- **Customer demographic data** - records demographic information about particular customers
- **Location data** - records the geographical position of the GSM device of a user
- **Technical service performance data** - records data around operational performance of service itself

⁹ This report does not explore the important issues of privacy around collection of use of such mobile data, but we recommend the following resources for further reading on this subject <http://www.gsma.com/publicpolicy/mobile-and-privacy/design-guidelines>

¹⁰ GSMA M4D Impact has a wealth of connections within M4D and is networked with over 5,000 individuals and 1,800 M4D deployments worldwide. This community offers a vast resource of information on existing data use among M4D service providers, and a wealth of potential reference points for identifying unmet demand for ways to better utilise the value of that data. We received survey responses from nearly 100 organisations about their data

¹¹ A total of 98 survey responses were gained, of which 54 were considered to be suitably relevant and valid for analysis presented throughout this report. All data are anonymised. There was a comparatively low valid response rate among MNO-led M4D projects. Despite this, we feel the cross-section of our sample is sufficiently representative of the wider M4D industry to warrant further discussion and valid analysis.

¹² Note that we do not claim this breakdown is exhaustive, or mutually exclusive. However, it does provide a useful high level breakdown of different types of common data points from which organisations can derive value using analytical techniques.

The responses gave insights into which types of data are collected more or less prevalently, as well as which types of data were more prevalent to certain organisation types.¹³

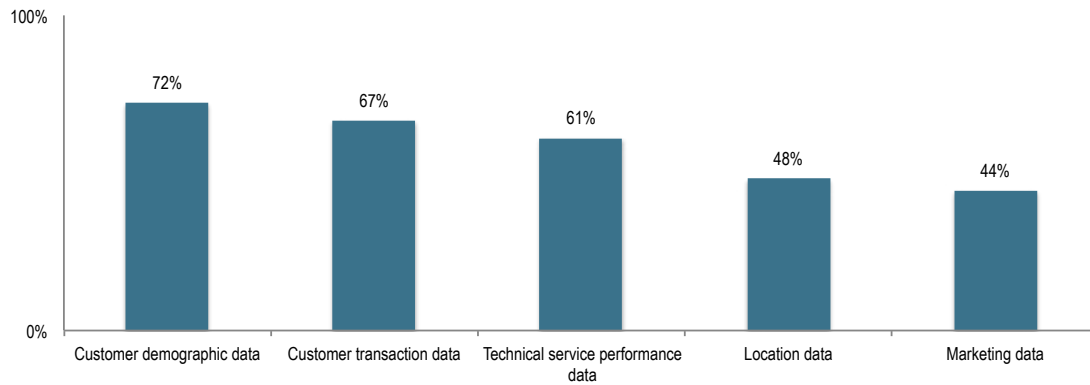


Figure 3: Existing data collection across data types for all respondent organisations

Findings indicate that organisations collect data across a wide range of data types, as seen in figure 3. Though responses tail off towards more sophisticated data types (e.g., location data), it still suggests that organisations have a lot to work with in terms of the data they already collect. It is also worth noting that some of the data types are generally collected organically, e.g. customer transaction data or location data, while others are actively requested over the mobile channel, e.g. customer demographic data. It appears non-profit vendors collect less of the organically collected data than other organisation types – see the comparison in figure 4. This is pronounced in areas such as collection of customer transaction data and location data which have shown to be powerful data sources for product analysis. Nevertheless, more often than not, M4D service providers across organisation types have powerful data sources readily available to them.

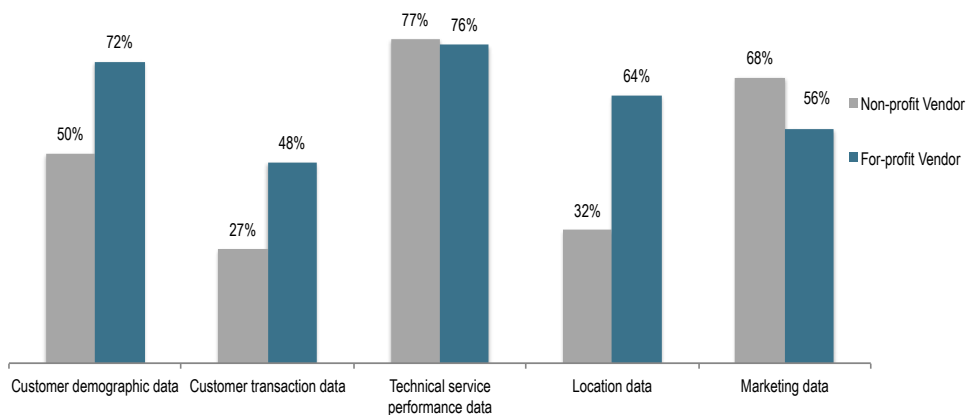
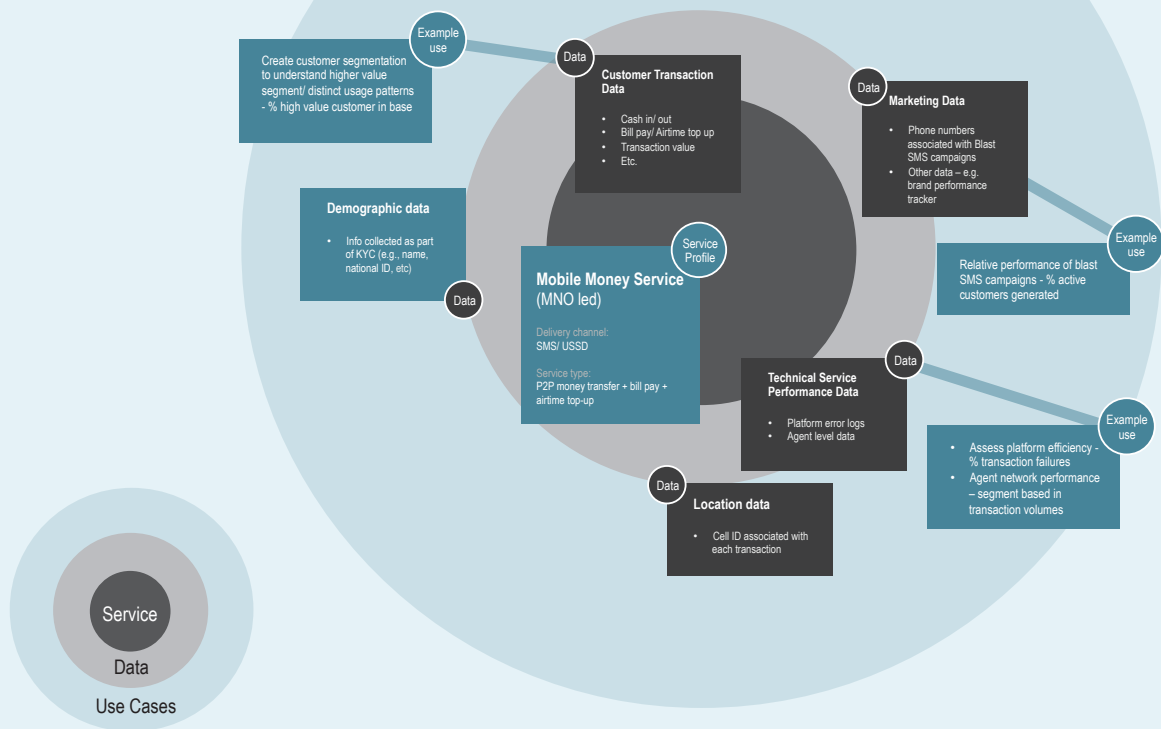


Figure 4: Existing data collection across data types for non-profit and for-profit vendors

Spotlight – Specific types of data and their potential uses for service improvement

While we have used a basic categorisation to compare the types of data collected by M4D service providers, it is important to remember that the exact data fields vary across service types and, indeed, individual organisations. To provide an illustrative flavour of the kinds of data points that could be collected, and how they might be used for analysis to enhance service performance, consider the mobile money service illustration below (note this is not an exhaustive description of all data sets that might be available, or of the types of analyses possible).

¹³ As noted elsewhere, non-MNOs often access data about the mobile network through intermediary gateways. However, they may also be given access to APIs that allow access to key data if these are in place for the given MNO.



In a similar way, other mobile-based services – e.g. mobile health information services or micro-insurance products for farmers – can consider the range of data sources they have available and how they might use such data to enhance service performance in line with the business and social objectives of the service.

Existing data use

“Large amounts of data are generated organically... This enables Reuters Market Light to ensure that the [agricultural] advisory information it provides is consistently relevant and specific to particular locations, dates, and land types.”

Reuters Market Light Case Study (Mobile Agriculture)

“Zoono receives the user’s name, ID number, phone number, origin of money transfer, collection of transfer, and its value. As such, Zoono has swathes of valuable end user data at its disposal, which can be used to monitor and inform the direction of the service.”

Zoono Case Study (Mobile Money)

“Through people registering and using the education service, BBC Janala collects phone numbers, location data and usage information... this is fed into reports and dashboards which help the team to track and improve the service. For example, they can see points across the courses where users are slowing down or even dropping off entirely... Visibility of the usage data allows them to target edits to the content where it is needed to increase its effectiveness and accessibility.”

BBC Janala Case Study (Mobile Education)

Figure 5: Extracts from a range of M4D Services summarising some of the mobile usage data collected

The above quotes from a variety of M4D service providers illustrate a selection of sophisticated attitudes and practices towards use of existing mobile data. However, while many M4D service providers collect data, and some report they use such information to improve the delivery of their service, we suspect that many have not yet succeeded in unlocking the full value of their data. Therefore it is critical to know more about the ways that existing data is being used, areas where it is being underutilised, and the uses of data which are of greater or lesser interest to M4D service providers. To get a quick view of this, we asked our survey respondents to consider five common uses of data, and tell us whether this use of data was something they currently implemented, intended to implement, or had no interest in implementing.

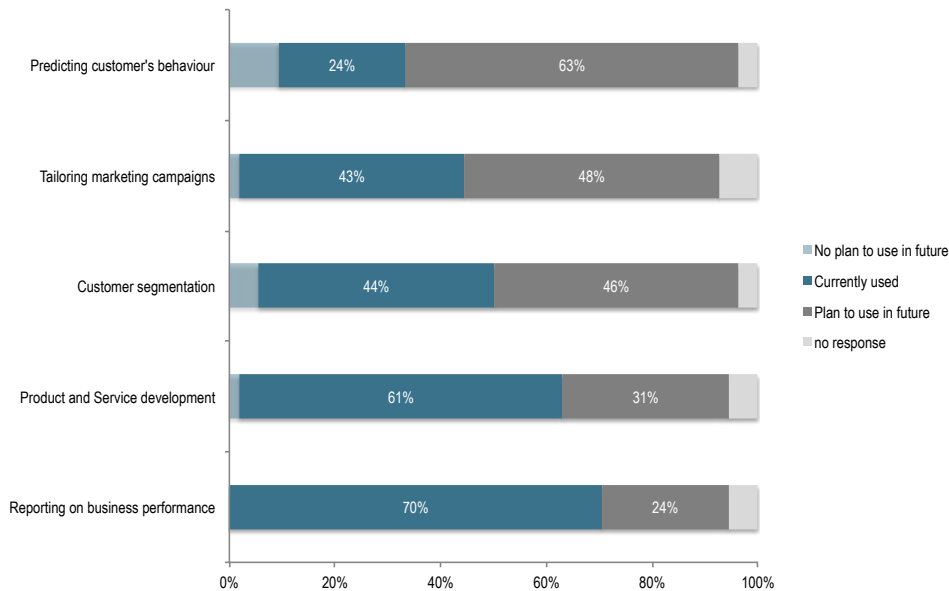


Figure 6: Existing data uses among respondents overall

It is clear from Figure 6 that use of data for product and service development and reporting on business performance are most commonly exploited. What is striking, however, is the level of unmet demand around use of data across the sample, particularly as respondents were asked about using data for customer segmentation, tailoring marketing campaigns or predictive analytics. If support could be provided to more organisations to better use the data they already possess, it could help drive important service improvements across a range of M4D service providers in areas such as these.¹⁴

Although the sample size across respective organisation types was small, findings suggest that MNOs are more advanced in the use of data than others. It is tempting to think this is because MNO's have more data, yet we see smaller organisations with access to less data develop similarly advanced approaches to using the data they have, i.e. the correlation between 'having data' and 'using it' doesn't always apply. In certain areas, such as prediction of user behaviour, there was a consistent trend showing a strong interest to work in this area in the future among all organisation types. Other patterns included a considerably stronger interest for using data to tailor marketing campaigns among non-profit and for-profit vendors who likely have less experience, capacity or resources for marketing activities than mobile network operators. All of these factors would influence the reach, uptake, scale and impact of M4D projects.

At this point is important to stress that data analytics is a means rather than an end when it comes to implementing the service improvements that will drive scale. The kinds of activities highlighted above are generally useful insofar as they allow organisations to focus on the right questions and customer engagement approach to tailor service design. In this way, we regard good data analytics as the pre-cursor to truly user-centric services with an effective customer engagement approach, and believe both quantitative (i.e. data analytics based) and qualitative approaches (e.g. customer surveys, ethnographic customer interviews, etc.) should be blended to create a foundation of evidence that supports the strongest service delivery models.

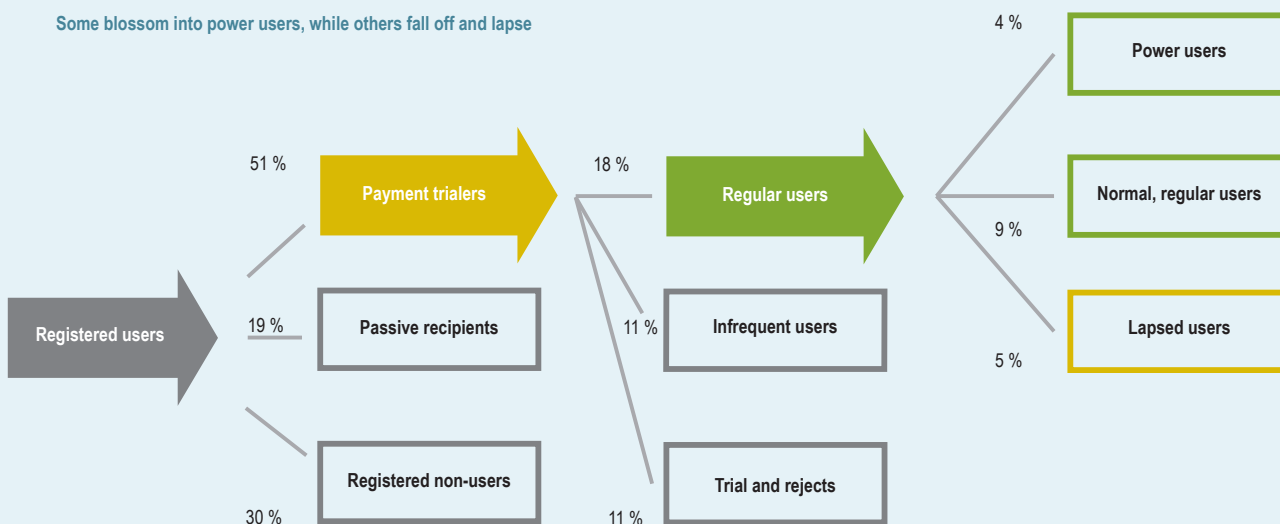
¹⁴ M4D Impact is working with a small set of M4D service providers to test this hypothesis, and will look to share findings of this work in short case studies over the coming year.

Spotlight – Driving Service Improvements: Data analytics will be a means, not an end

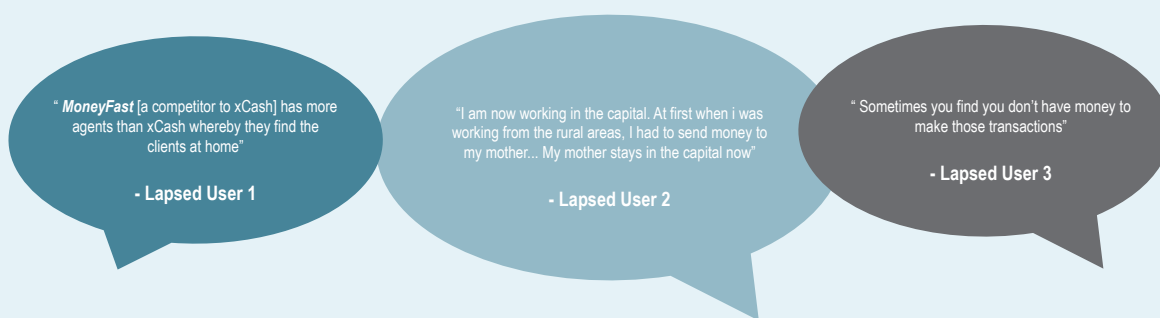
Data analytics is often a pre-cursor to customer engagement for services, and can help identify groups and questions that are more pertinent to drive service improvement. For example, when GSMA's Mobile Money for the Unbanked (MMU) team worked with an operator on a mobile money service to segment their customer base, isolating distinct types of user profile on the basis of a user's transactional history on the mobile money system, the following picture of the user base was created through customer analytics:

Not all regular users are the same

Some blossom into power users, while others fall off and lapse



Having this detailed view of the customer base allowed the operator to target specific groups of interest (e.g., by better understanding active rates and contribution to ARPU). The feedback from such customer engagement is highly informative for redesigning the mechanism of service delivery. For example, focusing on the lapsed group of users, the following findings were derived from focus groups.



Using such findings, the operator could – for example – take actions to try and reduce the number of lapsed users in the base, and re-measure the user base quality in future to determine whether the situation improved. Examples like this show the importance of a blended data analytics and customer engagement approach that identifies and answers the most important questions for unlocking a service's potential to scale.

Given so much data continues to be under exploited, it is important to understand the challenges that M4D service providers face when trying to make better use of their data. Our research gave additional insights into the challenges organisations faced which they believed could be remedied through better use of data. A snapshot of challenges derived from selected excerpts is presented below.

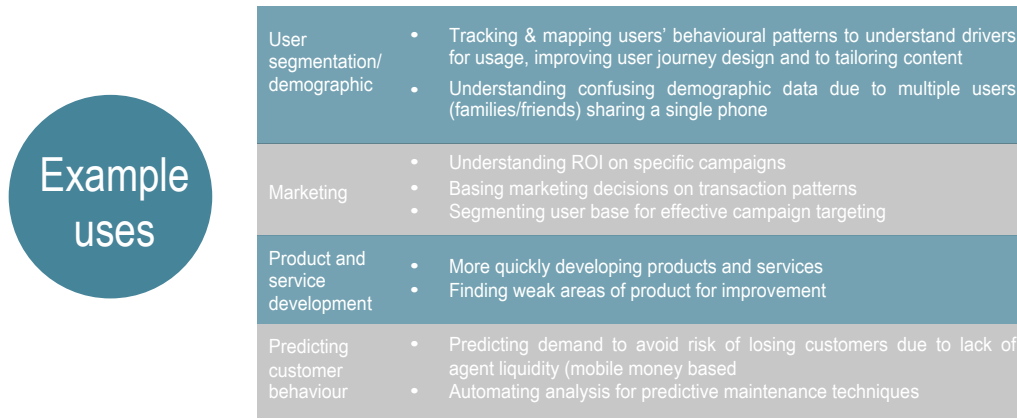
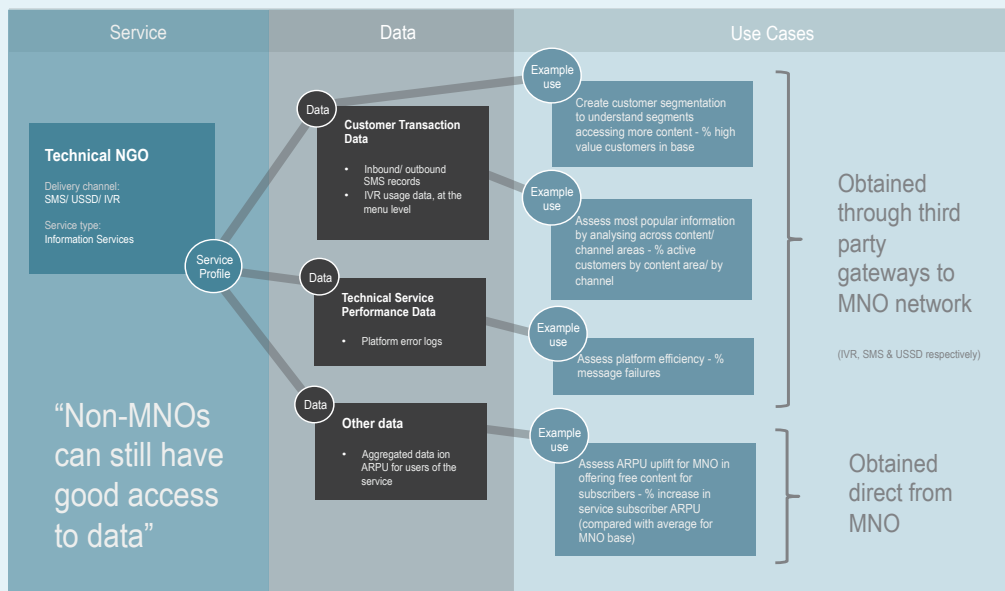


Figure 7: Summary and synthesis of select challenges faced by M4D service providers for which data analytics could be a solution

Spotlight – How can non-MNOs use data?

Some question whether non-MNOs have sufficient access to mobile data to drive the kind of service improvements discussed above. In fact, our findings suggest that non-MNO organisations can often get rich access to mobile usage data. Taking the example of one technical NGO that works with an MNO to deliver free information services to mobile subscribers, the NGO was able to access valuable customer usage data across IVR, SMS and USSD usage channels. The situation is summarised below:

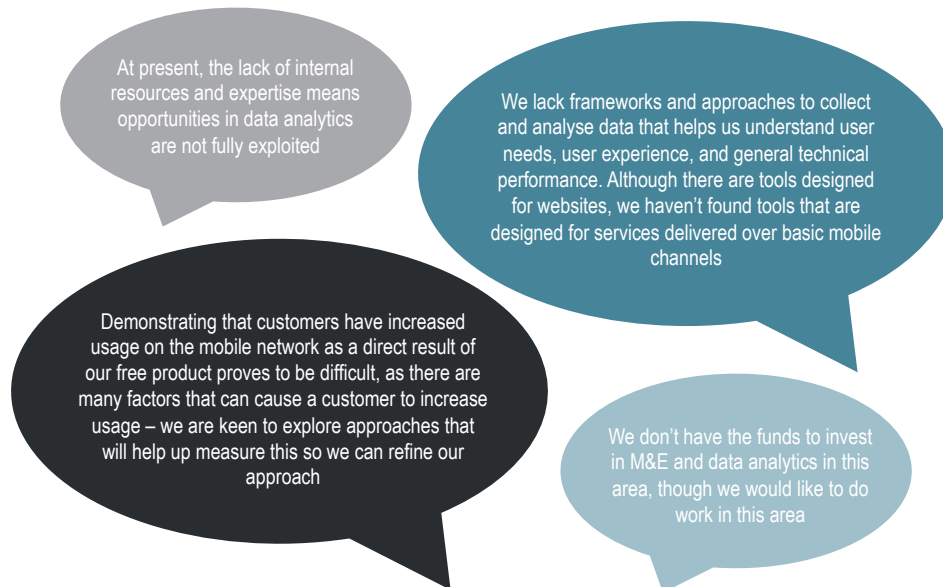


While certain datasets aren't always accessible from the MNO's network, many – as seen above – allow access to relevant data through network APIs, which can in turn be made available to smaller organisations, often through aggregators or gateways which have an existing commercial relationship with the MNO.¹⁵ In such instances, both MNOs and smaller organisations face the same challenge of feeling unable to capitalise on the data they do have access to. From this point of view, it appears that – in practice – making use of the data available is a deeper and more pressing issue than data access. As such our later survey questions aimed to explore barriers to making use of existing data across M4D service provider respondents.

¹⁵ It may take time for MNO's to open up APIs to all the relevant datasets. For example in the Mobile Financial Services sphere there is more consideration around opening up APIs that would provide third parties valuable data, but given the nascence of many mobile money services there is a natural lag in API development.

Barriers to data use

Many M4D service providers came forward to explain their interests and aspirations in using data to tackle the array of challenges they face. What is holding them back from getting the most out of their data? A number of descriptive responses from M4D service providers struggling to realise the value of their data is presented below.



Through responses such as these, we identified four thematic barriers to data use:¹⁶

- Lack of time or funds
- Lack of appropriate frameworks or approaches to analysing data
- Lack of appropriate tools to analyse data
- Lack of appropriate skillsets to conduct analysis

We then asked M4D service providers to classify their primary barrier from this set of four; our results are shown in Figure 8 below.¹⁷

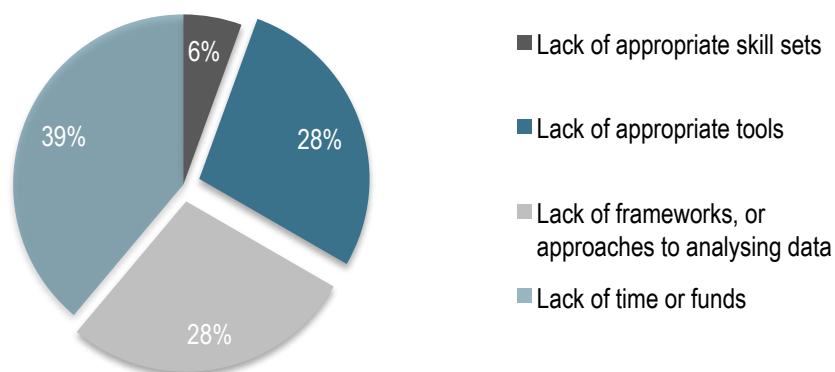


Figure 8: Primary barrier to data use among respondents

¹⁶ We note that 'access to customer data' can be a barrier for many smaller organisations, but we distinguish this issue of access from data use here because we are interested in what stops organisations using what data they already have, an issue we believe is often overlooked – if all organisations get access to the data they want but still don't have the tools to make use of it, then little progress will be seen in this area.

¹⁷ It is important to note that, to simplify the survey design, respondents were asked to select only one of the four possible criteria that represented the most significant barrier to data usage. Non-selection of other criteria does not infer insignificance, simply lesser significance than the response deemed most critical.

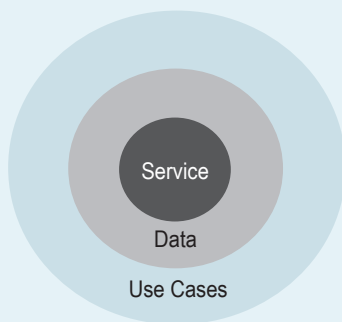
Interestingly, while the most frequently reported barrier to data use is lack of time or funds (this is shown to be true of non-profit and for profit vendor-led M4D projects) this was not reported to be the case for any MNO respondents. This highlights the complexity of unlocking the value of data and the need to strengthen technical capacity as much as providing the funding to allow for data analysis. Where lack of skills, tools or frameworks is the case, there is a great opportunity for sector-wide learning to improve the use of data in order to improve operations. Combining these two categories which amounts to over half of the primary barriers stated by the sample, we see the potential to create a strong impact on the community of M4D service providers through the provision of tools, approaches and frameworks that might address this barrier.

Spotlight – A model for supporting M4D service providers across sectors

Having established the common barriers for service providers across sectors in the M4D space, an opportunity arises for supporting a wide range of these organisations make better use of their data. A high level model that could achieve this is sketched below:

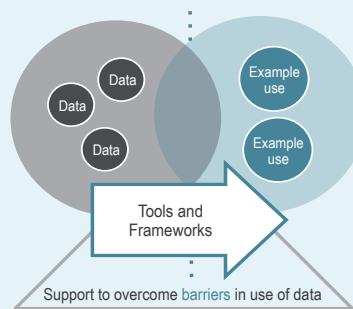
Work with M4D service providers across sectors

Results from our survey show a need across sectors and organisation types to make better use of existing data.



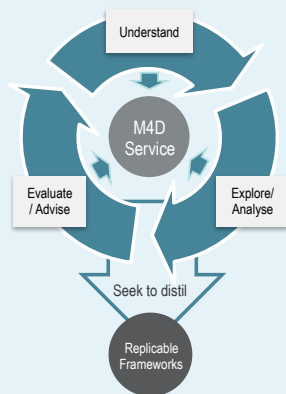
Add support to tackle barrier of lack of frameworks and tools

A cost effective service supporting M4D service providers to make use of existing data, focusing on tools and approaches that can be reused would prove valuable for a wide range of organisations.



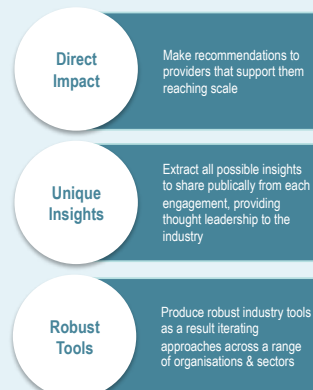
Seek replicable approaches across sectors & organisation types

Beginning on a case-by-case basis with given M4D service providers in tackling barriers to data use, seek to distil replicable frameworks and tools across sectors



Add value to wider M4D industry across sectors

After multiple iterations, share findings with the wide industry in terms of insights and tools that are relevant and applicable to players across sectors; both directly and indirectly impacting M4D service providers in supporting them overcome barriers to data use.



A model like this could support the growing segment of mobile service providers in making use of their existing data. Given the growing interest of funders to invest in and support such services, we believe there is a gap to be filled in this area that could be filled by intelligently designed and cost-effective data analytics support services.

Main Findings and Conclusion

Key takeaways

- **Data supply:** While there is variation in the amount, quality and type of data collected by M4D service providers, our research shows that most M4D service providers already collect forms of data that could be used to improve service design. For example, 67% of respondents state they collect customer transaction data; 48% collect location data of some kind.¹⁸
- **Analytics demand:** Although M4D service providers do use service data analytics to improve services, they want to do much more: for example, 63% said they intended to use it to predict customer behaviour; 46% said they intended to use it for customer segmentation. If M4D service providers had more resources and support to better use the data they already possess, it could help drive important service improvements across a range of areas.
- **Barriers to using data:** Despite this intention, there are significant knowledge and resource gaps in M4D service providers regarding how to best realise the data analytics opportunity: lack of time or funds was the single largest barrier to making full use of existing data, but lack of tools and appropriate frameworks or approaches to analysing data were collectively highlighted by 56% of survey respondents as the most significant barriers.

Key recommendations

For M4D service implementers

- **For all organisation types:** Incorporate data analytics into M4D service/project planning and execution from the beginning of projects, determining what can be measured, and which metrics will be important success factors to consider in driving scale
- **For MNOs with extensive access to network data & non-MNOs with access to relevant network data:** create work streams that investigate the value of existing data, especially transactional databases and location data, to build out critical business intelligence functions that help understand how to drive high value customer segments and optimise service performance
- **For non-MNOs without access to relevant network data:** review any existing agreements with third party gateways/aggregators to determine whether such data is obtainable through existing service line agreements (e.g. outbound/inbound SMS transactional data supplied by a third party); in instances where relevant data cannot be obtained this way, consider a separate negotiation with the MNO or intermediary, where a business case should be presented that outlines the value to all parties for sharing the specific data in question ¹⁹

Rationale

We believe those who pro-actively invest in these functions now will increase the commercial and social impact of their services in the longer term and out-perform their counterparts – all too often the investment in such analytics is 'put off' in favour of more pressing priorities, but organisations who follow this logic risk putting off the investment indefinitely.

¹⁸ By 'collection of data' we mean that organisations have setup systems to capture data on an ongoing basis. For example, while non-MNOs may not always have the means to collect location data from basic phones directly, they may set up agreements with MNOs (either directly, or through 3rd party gateways) that will allow them to access to such data, in this instance we would say the non-MNO is 'collecting location data'.

¹⁹ It is important that this request be in line with regulatory market requirements (e.g. customer location data generally cannot be shared without the customer's consent). For further resources on data privacy go to <http://www.gsma.com/publicpolicy/mobile-and-privacy/design-guidelines> & <http://www.gsma.com/publicpolicy/mobile-and-privacy/mobile-privacy-principles>

For funders of M4D services/projects:

- Include financial and technical resources as part of investment packages to M4D services, helping to close the knowledge and resource gaps currently preventing many M4D service providers from making best use of their data
- Invest in work streams that aggregate findings from mobile enabled investees across sectors with respect to their data, which can contribute to tools, frameworks and approaches that can accelerate the success of 'mobile technology based' services across the wider M4D space.



We believe those implementing well designed support functions for investees will see higher return on investments, both in the longer term impact of the organisations themselves, but also in the shorter term lessons which will be of value across investment portfolios. In addition, our experience shows that supporting investees in this way can create a strong channel for knowledge sharing across funding and recipient organisations that serves to increase the value for both parties

About

GSMA Mobile for Development Impact supports the digital empowerment of people in emerging markets through its Mobile for Development resource. It is a central platform of data, analysis and insight used to inform investment and design decisions for mobile services. Our work is freely accessible through support from Omidyar Network and in partnership with The MasterCard Foundation at gsmaintelligence.com/m4d



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