Smartphones and gender equality

In Kenya...

- Women face barriers to education, entrepreneurial and social activities.
- The Gender Inequality Index ranks Kenya at 126 out of 155 countries due to inequalities.
- 50–300% year-on-year growth in smartphone penetration since introduced in 2007.
- 99% of internet access is through a mobile device.

What affects smartphone ownership and use?

- Education is a central driver of smartphone ownership and use, whereas income is not.
- Gender does not affect spend on data unlike airtime where a woman tends to spend c. 80% of a man’s spend, all things being equal.
- Women place greater emphasis on the importance of smartphones in connecting them to their family and the world beyond.
- Even with similar education and income levels, women use their smartphone for fewer tasks and/or less frequently.

What are the benefits of owning a smartphone for women in Kenya?

- New sources of information and current affairs.
- Closer connections with social networks.
- More business opportunities (extending business contacts and increasing business hours).
- >66% of surveyed business women said a smartphone had increased her income.
The use of smartphones by women in Kenya

Rachel Cowell

Mobile phones have allowed women over the world to feel more independent, to feel safer and, in Kenya thanks to M-PESA, to be financially included. Smartphone ownership is now increasing rapidly, bringing internet connectivity to mobile users. Experience from developed markets where there was a shift from dial-up connections to broadband suggests that faster and more seamless internet access can lead to step changes in behaviour and impacts. This paper explores smartphone use by men and women through a survey of smartphone owners in Kiambu County, Kenya. It examines predictors of, and barriers to, smartphone ownership, alongside evidence of whether smartphones are being used by women in ways that redress inequalities.

Women in Kenya face a variety of inequalities compared to men. Historically, women have been disadvantaged in access to education, which is reflected in the distribution of the population’s educational attainment. However, significant progress has been made in recent years, as Kenya sought to meet the stretching Millennium Development Goals. Parity has been achieved for girls and boys enrolling in primary education and near parity in secondary education. However, this does not extend to college and university attendance and this is not the case in rural areas, where girls are still less likely to be educated than boys. In fact, in the North Eastern Region, 75% of women have not received any education. Alongside this, women are disadvantaged in relation to entrepreneurial activities, as a result of unequal access to information, financial services and capacity-building opportunities. It has been estimated that agricultural productivity could increase by up to 20% if women’s access to resources were equal to men’s. Women perform the majority of unpaid domestic duties in Kenya, reducing the time available for paid activities, or unpaid activities such as personal-development or further education. Furthermore, Kenyan society is one in which men hold decision-making and planning power, leaving women more excluded from social participation. In 2014, 23% of Kenyan women were not exposed to any source of mass media, compared to just 10% of men. The 2014 UNDP Gender Inequality Index ranks Kenya at 126 out of 155 countries due to these inequalities.

The 2014 UNDP Gender Inequality Index ranks Kenya at 126 out of 155 countries due to gender inequalities

Penetration of smartphones in Kenya has grown at between 50% and 300% year-on-year since they were introduced in 2007. The research undertaken for this Report explores how the devices are being used by women and men to improve business opportunities, expand social networks, increase participation in society and increase points of reference when seeking information. We set out to discover if use of a smartphone could redress certain inequalities that women face, and if so, if it has led to economic and social benefits. The findings indicate that smartphones have the potential to impact existing gender inequalities in access to information, entrepreneurial activity and social participation. In business, access to a smartphone gives women the same opportunities as men in extending business contacts, increasing working hours and lifting incomes. More than two-thirds of the business women surveyed said a smartphone had enabled her to increase her income. Women who have lower levels of tertiary education than men, are at risk of missing out on the benefits of the digital economy and society in the near term

It is apparent from the individual views and stories of those in Kiambu County that the smartphone has for many women had a transformational effect on their lives. Nearly all respondents rated the smartphone’s ability to connect with both family and friends, and people outside of their immediate networks, as very important to them. The special emphasis that women place on the greater connectivity that a smartphone provides is an important finding for gender inequalities, as these can be improved through collective discussion and the questioning of discriminatory social norms and practices.

The research reveals that though women and men use smartphones differently. Fewer women make use of various features than men and all things being equal, they spend less money on airtime. We found that even if a woman reports a high level of education and monthly income, she will use her smartphone less than a similarly paid, well-educated man.

One finding with particularly important implications came out of the survey; education is a central driver of smartphone ownership and use. This was distinct from income, which did not impact the likelihood of smartphone ownership. Smartphone users are more educated and affluent than the Kenyan average but, among them, level of education is a key indicator of smartphone take-up, and of the extent and depth of the use of resources that it opens up. The better educated you are, especially after secondary school...
and college, the longer you will have owned your smartphone, and the more data you will consume. Consequently, women, who have lower levels of education than men at this level, are at risk of missing out on the benefits of the digital economy and society in the near term. Failing to act to ensure that women have equal access to this vital enabling resource at the outset, and that they are empowered to use it, risks exacerbating gender inequalities instead of capitalising on this powerful equalising force.

The special place of mobile phones in Kenya

Thanks largely to the success of mobile payments solution M-PESA, the mobile phone holds a special place in a Kenyan’s heart. The value proposition presented by M-PESA means that while a gap remains in access to a mobile phone between women and men in Kenya, at 7%, it is much lower than the average of 13% across Sub-Saharan Africa. A mobile brings communication where there are few landlines, access to information where infrastructure is weak, and efficient banking facilities to a previously largely unbanked population. Basic phones, which can bring information in easily digestible formats such as SMS market prices and farming tips via iShamba, iCow, Kilimo Salama, education services such as shupavu 291, and pregnancy and health advice from Toto health and Afya Tips, have demonstrated this. For women, the use of mobile phones can have a powerful impact. The financial inclusion enabled by M-PESA was especially useful for women, those in rural areas and the illiterate, who are less likely to be banked.

The mobile phone is the device Kenyans would most like to upgrade and many say they would forgo bus fare or food in order to buy airtime. 86% of households own a mobile phone. Since their introduction nine years ago, the penetration of smartphones has increased significantly, with mobile broadband accessed by 18% of all mobile phone connections by the end of 2015. In the first half of 2015, an estimated 58% of all phones sold were smartphones, around 150,000 devices per month. It is now the main route to internet access in Kenya; in 2016, 99% of internet subscribers (around 21.5 million or 48% of the population) accessed the internet through a mobile device.

Gradually, this is filtering out from the urban centres; in 2011, 70% of smartphone sales on Kenya’s primary online retailer, Jumia, were to Nairobi, but by 2015 that figure was just 43% of sales. However, the gap in terms of use of mobile internet use between Kenyan women and men is 22%.

Research on smartphone users in Kiambu County

The study of 861 smartphone users for this Report took place in Kiambu County, an area close to Nairobi where people are more likely to have the disposable income required to own such a device. Kiambu County is defined as 62% urban, as compared to Kenya’s average of 32% and 70% ‘non-poorness’ as compared to just 45% of Kenyan population. In Kiambu County there are proportionately more 34 to 65-year-olds, the population is better educated with more people in paid employment and fewer in agricultural employment than the Kenyan average.
The selection of respondents was designed to produce an equal gender balance, making it impossible to use the data to directly assess whether men or women were more likely to own a smartphone. Instead, it was possible to look at the predictors of length of smartphone ownership, resulting in the discovery that the level of education affected how long a respondent had had their smartphone. Those attending college after secondary school, and then university, had owned their smartphones for significantly longer than those that reached just primary or a secondary level of education, with university graduates having had their smartphones for significantly longer than college graduates. The women and men sampled had surprisingly similar levels of higher education; this is not typical of Kenya or Kiambu as a whole. From the comparison with Kenya and Kiambu County, it is apparent that the level of education is higher in the sample of smartphone users. Education can sometimes be taken as a proxy for income. Currently, only primary education is free in Kenya. Therefore, this finding could be taken to suggest it is actually family income that affects length of smartphone ownership. However, within this group, level of income did not appear to affect the length of smartphone ownership. The sample consists only of users who are wealthy enough to afford a smartphone; indeed, the findings indicated that smartphone users tend to be financially independent with regards to their mobile, with 94% of females and 98% of males saying that they mainly paid for their airtime themselves. It could be that a longer education exposes students to the benefits of the internet, while reducing the fear of the unknown that poses a barrier to the adoption of new technologies. These findings are supported by an analysis of data spend, which shows that those educated to at least college level spend more on data each month, as discussed below.

In examining the responses from the smartphone owners in Kiambu County, they proved to be users by design rather than by accident, having had a clear understanding of the benefits that a smartphone can bring before procuring the device. However, more women than men said that the reason they own a smartphone is because it was given to them. Contrary to anecdotal reports that a customer will seek a smartphone for the camera or for WhatsApp, access to the internet was the primary reason that both women and men had chosen to own a smartphone.

**Women’s voices on the impact of a smartphone**

“It makes the world a small village...”

“I have met new people and new ideas about life”
How women and men use their smartphones

Intensity of use

Kenyan women play a central role in families and communities, and patterns of people’s time spent using a smartphone appear to reflect this. As found around the world, women perform the majority of unpaid duties in Kenya. UN Women reports that globally women do on average 2.5 times as much unpaid care and domestic work and work longer hours than men when paid and unpaid work are combined. In rural areas of Kenya, the task of sourcing firewood and water often falls to women, leaving little time for entrepreneurship. In fact, women collect 73% of the drinking water collected across Kenya as shown in Figure 6, the under 20s in the survey are the most likely to spend over three hours per day on their smartphone. There is a noticeable gender gap across all age groups (from under 20 to 40). This may reflect the higher level of familial domestic duties undertaken by women.

The vast majority of respondents said that their total monthly expenses, a proxy for income, were under KSH50,000 per month (approximately US$500) with women reporting lower expenses on average than men. In addition to having less leisure time than men, the OECD reported that on average women tend to direct up to 90% of their income to their families and the community, compared to men who reinvest just 30–40%. Consistent with this, the women surveyed tended to spend slightly less on airtime for their smartphone, even when reporting the same amount of monthly expenditure. For example, a woman who had received only primary school education and had no job, would spend less than a man in similar circumstances. Likewise, a self-employed female university graduate would be predicted to spend less on airtime and data than a man in similar circumstances.

When asked to report their spend on data, just under a third could not answer, whether because they had used their airtime credit to buy data, rather than buying data directly, or due to irregular spend or reliance on WiFi. Women were more likely to report zero expenditure for data spend than men, but when the data spend was reported, gender was found to have no effect per se. That is, all things being equal, women and men spend the same amount on data. What does have an impact on reported data spend is education, income and if they reported using WiFi, which seems to indicate a more intensive user generally. The better educated consume significantly more data, which increased with their income (proxied by total monthly expenses). This was reflected in both male and female respondents. Furthermore, for all smartphone owners, time and money spent on a smartphone increases significantly over time since the device was first received. This could indicate that the user sees progressively more value in the device and so integrates it in more aspects of their daily lives. The increase in time spent is not affected by gender or wealth – both rich and poor, men and women, increase their time spent on their smartphone in similar ways. The increase in money spent on the device since they first bought the smartphone was, on average, across all respondents, KSH786 (approximately US$7).

The trends in data use are in marked contrast to spend on airtime, primarily used for voice calls and SMS. As well as education and income, gender too has an impact on airtime spend. A woman tends to spend around 75–85% of a man’s spend on airtime, all other things being equal. But employment showed the biggest effect of all. It is clear that despite the multiple communication methods on a smartphone, those who select ‘business/self-employed’ or a job in government rely on voice calls and SMS more than any other group.

The roles of these basic phone functions are still highly relevant; indeed, these are the only functions to reach near 100% use by both men and women. That a woman with the same level of income or total expenses will spend less money on her smartphone than a man could point to the different cultural roles of men and women. These findings highlight a potential equalising impact of data services, different from feature phones as spend on these are not affected by gender as a factor in and of itself.

Variety of use

It became clear from the survey results that the Kiambu County women are less likely to use their smartphone for a variety of tasks than the men. There are many possible reasons for this. It could be a function of disposable time and income once domestic duties and family expenses are accounted for. It could be that men use the phones for entrepreneurial activities that are culturally less inclusive towards women. Even when women have the same income as men, there are certain features that they say they use less frequently, including video streaming or downloading video, games or apps, searching for the answer to a specific question and even using the internet. In fact, even when women have the same education level and income as a man, they use their smartphone to perform fewer tasks, and when they do perform the same task as a man, for example, using email, or searching for the answer to a question, they do that less frequently than a man.

Women’s voices on the impact of a smartphone

“It has connected me to the whole world and so I can communicate at the comfort of my seat”
When asked which areas of use had changed as a result of having a smartphone, more men than women said their use of a particular function had increased over time, consistent with their longer daily dwell time with the device. However, as discussed below, women’s responses also indicated significant impacts as a result of having a smartphone, noting incremental benefits, beyond the independence, communication and security benefits resulting from having a mobile phone. We analysed the effect of gender in these responses and then whether the gender effect remained when we accounted for employment levels and education. We found that each of these variables – gender, education level and type of job – impacted on the respondent’s likelihood of reporting an increase in usage. However, the gender-specific effect remained strong and consistent even when we compared this to models that accounted for income also. Models using only gender and a respondent’s village had the strongest gender effect, but did not fit the data as well – suggesting that some, though by no means all, of the observed gender differences are due to gender patterns of education and employment.

Heavy users, both male and female, defined as those using their smartphone for over three hours per day, were more likely to use the internet, Twitter, use mobile instant messaging, download music video or games, and use Facebook than those who use it for less than three hours.
In fact, Facebook and WhatsApp were not as intertwined with smartphone usage as might be expected. When asked what the impact would be on their Facebook and smartphone usage if their smartphone did not have Facebook installed on it, around 30% of female respondents said they would use either Facebook or the smartphone less, and for men this was closer to 40%. The overwhelming majority said it would not affect their usage of either platform or device.

Men tend to have a higher specification of smartphone than women, consistent with their relative level of income. During the survey, the total amount being stored on a smartphone compared to the available space on the device was examined, with the intention of surfacing whether the device was being used fully and to get an indication of the technical specifications of the smartphones in circulation. Of the 861 respondents, 170 participated in this question, of which 72 were female. Of these 170 smartphones, the space still available was recorded to be on average 1GB, with a median total space for females of 2GB and 4GB for males. This level of use of storage capacity also points to the growing demand for low cost, higher specification smartphones. The average price of a Kenyan smartphone is dropping. In 2011, there were 15 brands of smartphone at an average cost of US$150 on Jumia; in 2015, there were 22 at an average cost of US$100.

The impact of smartphones on women’s lives

The benefits of a smartphone for women can be significant, numerous and wide-ranging. A large proportion of women of Kiambu County not only value their device, but testimonials from the survey spoke of the transformative effect of a smartphone. Clearly, the smartphone is a highly valued device. Though a higher proportion of male respondents placed the highest value on it, women see value in the smartphone helping them to perform well in their jobs, as well as to source local information, keep up-to-date on current affairs, access new markets and save time in business operations. Women place greatest emphasis on the importance of the smartphone in connecting them to their family and the world beyond.

Greater opportunities for women in business

Smartphones have high potential to improve business opportunities and increase income, and this is relatively equal for women and men. It can ease communications with suppliers and customers, increase customer reach through social media, be helpful for arranging appointments, and useful in conducting online research. For those looking for work, smartphones provide access to information about available jobs through social networks. When asked for spontaneous answers to how it had supported their business, women, like men, gave a range of positive responses, from the ability to organise and manage their businesses, to communication with customers and the marketing resources available through Facebook and WhatsApp and OLX (an online marketplace similar to Amazon).

Women’s voices on the impact of a smartphone

“I send my design through WhatsApp so if people like it I create it for them. My friends send it to their friends, so I get more customers, so I make money”

“I get orders from people even when I am not at my work place – it saves time and I get more work”

Women who are in business have been able to capitalise on the benefits of smartphones in the same way as men: 40% of business women reported an increase in number of hours that they work and 48% the number of jobs that they do; 56% of business women had a greater number of business contacts; and 63% of business women had more income, all because of their smartphones.

All other things being equal, gender appears to have no impact on increased income and number of hours and jobs worked that result from smartphone usage.

Figure 9: For both women and men, a smartphone has had a positive impact on their working lives

63% of business women have more income due to their smartphone
HOW A SMARTPHONE HELPS WOMEN IN THEIR ENTERPRISES

Jacinta’s story: Jacinta runs a hairdressing salon with the help of her smartphone. By being more accessible, she is ready for clients whenever they request her services, reducing the risk that they’ll go to a competitor if they can’t reach her. She uses services such as WhatsApp and Viber to develop rapport with customers, and like many smartphone users around the world she spends her evening happily browsing the internet, on her phone. In her words, “(the internet) is wide – you can’t know everything”. See Jacinta’s story at http://www.vodafone.com/equalworld.

Harriet’s story: For clothes-maker Harriet, smartphones have impacted the entire value chain of her business. Once she would design clothes and then peddle them by foot and by bus, taking long trips away from her family in an effort to recoup costs. These days the fabric shop sends her photos of fabric swatches as they become available. If she likes a design she might place an order and it will be delivered by matatu (bus). She can send photos of her designs to friends via WhatsApp and post images on Facebook, which are then reposted and shared, resulting in an increase in customer reach and sales. Customers send their measurements to Harriet and she can make clothes to order before shipping them off in the next matatu. See Harriet’s story at http://www.vodafone.com/equalworld.

Women’s increased social participation through smartphones

Through the smartphone there is easy access to information that allows the user to be engaged in society, to broaden their networks and spheres of influence. The number one positive impact cited by women was the connectivity the smartphone had brought to their family and the wider world. It can enable easy communication with existing networks, but it can also enable a user to broaden a social network, increasing their points of reference and go-to sources of information.

40% of female respondents said that the smartphone had increased the number of places they sought information and advice from (59% of male respondents agreed). This could be especially powerful for women in rural areas.

Both men and women credit smartphones with expanding their social networks, increasing the number of places they seek information from and allowing them to stay updated. An overwhelming number of respondents found the smartphone very important in connecting with both close friends and family and people outside of their immediate network.

Source: Rachel Cowell

Figure 10: The value of a smartphone to women

How important is your smartphone for enabling you to...?

- Connect with my close friends and family
- Connect with people outside of my immediate network
- Perform well in my job
- Find out what’s going on in my local area
- Stay up-to-date with current affairs (business, news etc.)
- Search for a job
- Access educational content
- Save time in conducting my business
- Access information on health
- Market or do research for my business
- Access political information for my country
- Access information on retail/online shopping
- Access information on finance
- Source products, materials, suppliers
- Access information on agriculture
- Recruit staff

<table>
<thead>
<tr>
<th></th>
<th>Very important/important</th>
<th>Not important/important</th>
<th>Not that important</th>
<th>Not important at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect with close friends</td>
<td>80%</td>
<td>16%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Connect with people outside</td>
<td>82%</td>
<td>16%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Perform well in job</td>
<td>66%</td>
<td>24%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Find out what’s going on</td>
<td>84%</td>
<td>16%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Stay up-to-date with current</td>
<td>57%</td>
<td>22%</td>
<td>18%</td>
<td>3%</td>
</tr>
<tr>
<td>Current affairs (business,</td>
<td>74%</td>
<td>20%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>news, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search for a job</td>
<td>82%</td>
<td>16%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Access educational content</td>
<td>76%</td>
<td>18%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Save time in conducting my</td>
<td>70%</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>business</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access information on health</td>
<td>72%</td>
<td>18%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Market or do research for my</td>
<td>68%</td>
<td>20%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>business</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access political information</td>
<td>60%</td>
<td>28%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>for my country</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access information on retail/</td>
<td>56%</td>
<td>30%</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>online shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access information on finance</td>
<td>52%</td>
<td>30%</td>
<td>18%</td>
<td>0%</td>
</tr>
<tr>
<td>Source products, materials,</td>
<td>54%</td>
<td>26%</td>
<td>18%</td>
<td>2%</td>
</tr>
<tr>
<td>suppliers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access information on agriculture</td>
<td>62%</td>
<td>24%</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>Recruit staff</td>
<td>58%</td>
<td>28%</td>
<td>14%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: Rachel Cowell
One of the key benefits of a smartphone cited by female respondents, when asked for a spontaneous answer, was the ease of communication and ability to connect with people. In the survey, 38% of total female respondents (both working and unemployed) said the number of people that they called and called them had increased since having a smartphone, which they attributed to the increase in contacts and connections, and 7.5% said it had increased the number of people they connected with outside Kenya. In a society in which men hold decision-making and planning power, in which cultural practices that adversely affect females are prevalent⁶⁸, a more extensive set of connections and social reference points could have a substantial impact for women. Women’s groups are a powerful source of support and development in Kenya⁶⁹. UN Women suggests that collective discussion is an important way of questioning discriminatory social norms, unequal power relations and unequal distribution of resources; encouraging poor and marginalised women to see themselves as rights holders⁷⁰. Where networks and groups hold such an important role for some women, the role of a smartphone in facilitating communication with both close friendship and family groups and those outside the immediate network is valued. By strengthening social connections through more frequent contact and finding contacts and new places to seek advice from, a woman’s points of reference are increased and, in some cases, social norms can be challenged.

Exposure to alternative points of view is not without social costs, however. Negative social implications cited included the influence of “bad sites”, and the risk of “spoiling” people, questioning whether it was good for children, in particular, to be able to access whatever they wanted on the internet. The smartphone was cited as creating suspicion in the house and causing tension. One woman said “It has exposed me to the world and in that way it is risky”. Another expressed what many lament the world over, “I have missed on the outside life exposed me to the world and in that way it is risky”. With increasing frequency and finding contacts and new places to seek advice from, a woman’s points of reference are increased and, in some cases, social norms can be challenged.

Policy recommendations

The survey conducted for this Report indicates that the impacts of owning a smartphone for women and men in Kenya are indeed transformational in terms of social and business activities and for access to information. Female respondents particularly value access to new sources of information and closer connections with social networks. However, women continue to have less access to mobile technologies than men. For this reason, general policy measures that make smartphones more accessible – for example, lowered or eliminated mobile specific taxation – will disproportionately benefit women. Governments and operators should also consider programmes that specifically promote women’s ownership of smartphones.

But as this Report demonstrates, these measures alone will not be enough. Beyond the access gap, women are more limited in their use of a smartphone. Women use fewer functions than men and where they do use the same function, they tend to use it less often.

One of the strongest findings in the survey is that education is a clear precursor to smartphone ownership and level of use. For the benefits of connection to the community, business opportunities and access to the wealth of information provided through the internet to touch women and girls and help them to challenge existing barriers in these areas, the ability to fully use and create digital content in the same way as men and boys is critical. If more women are to achieve the benefits of smartphone ownership and use, ensuring equal digital literacy is paramount.

Relevant content for women is important too, as it forms a central element to the value proposition of owning and using a smartphone. Governments should take a leadership role in the development of content relevant to women such as the provision of e-health services. In combination with this, creating an enabling regulatory environment that gives mobile operators the flexibility to provide data bundles and tariffs that attract women to use these and other services will be important for redressing wider inequalities.

For women who fully access the resources of a smartphone, it provides a new equaliser, a way to connect with the community, and with others outside, to find out what’s going on, to engage with government issues, to access information and increase their income or improve their business. Policy makers must seize the opportunity that this presents by promoting the equal take-up and use of this vital resource by women, which in their hands can help start to close gender gaps as Kenya and similar countries enter the truly digital age.

Survey methodology

The sample was distributed proportionately across the sublocations in Kiambu in line with the 2009 census, structured to have equal rural and urban and representation across age groups. Sublocations with a higher population had a higher sample size. In each sub-location, villages/residential areas were selected randomly from a list developed with the help of local administration. Within each village/residential area, the supervisor listed fixed landmarks (church, school, major junction, etc.) and the household nearest to those points were interviewed, after which four households were skipped on the left calling on the fifth household.

At household level, all persons with a smartphone had an equal probability of selection and only one person was interviewed.
End notes


63. The recently released 2014 census data shows a decrease in the number of men and women citing “no education” Kenya wide including Nairobi, however smartphone users remain more educated than Nairobi, Urban, Rural and Kenyan average.


86. GSMA Intelligence, January 2016

87. African Union Concept Note: 2014 Year of Agriculture and Food Security in Africa


89. What is Agricultural Transformation? John M Staatz, Michigan State University, October 29th 1998

90. The Agriculture and Food Chain: Entering a New Era of Cooperation, KPMG, May 2013

91. Monsanto presentation by Kerry Preete to UBS Best of Americas Conference, September 2014


93. GSMA m-Agri Tracker: http://www.gsma.com/mobileforgood/programmes/magi/tracker

94. Agricultural value-added services (Agri VAS): market opportunity and emerging business models; GSMA intelligence, February 2015

95. MDICT Impact Nokia Life case study, September, 2013

96. MDICT Impact Reuters Market Light case study, October 2014

97. The IHSI Annual Report for 2012-13 cites several case studies with benefits of this magnitude http://www.ihsi.ie/Performance/Annual-Reports

98. Esoko case study, MD Impact, April 2013 http://www.mdimpact.com/analysis/case-studies/esoko

99. ‘Smallholder farmers and business, Hystra, July 2015

100. Esoko press release December 2011


103. Transforming Indian Agriculture: India 2040—Productivity, Markets and Institutions, Ed. Marco Ferroni

104. Socio-Economic Impact of Mobile Phones on Indian Agriculture, Mittal et al, Feb 2010


106. UN FAO. http://www.fao.org/docrep/007/j2620e/j2620e04.htm


109. GSMA. Mobile Money for the Unbanked, 2014

