



# Connected Women

How mobile can support women's economic and social empowerment

**Vodafone**  
Power to you



Supported by the  
**Vodafone Foundation**



# Contents

This Report has been produced by Vodafone Group, supported by the Vodafone Foundation and in collaboration with Professor Linda Scott of the Saïd Business School and Accenture Sustainability Services.

It explores how mobile services provided by Vodafone and the Vodafone Foundation are enabling women to seize new opportunities and improve their lives. Accenture Sustainability Services were commissioned to conduct research on the services and to assess their potential social and economic impact if they were widely available across Vodafone's markets by 2020.

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# Foreword

from Vittorio Colao, Chief Executive, Vodafone Group Plc



Around the world mobile is having a significant positive impact on economic development and individual wellbeing. This is true in both emerging and mature markets. With mobile, people are seeing access to services such as health and banking opening up, and new opportunities for entrepreneurship emerging.

At Vodafone we are excited by the opportunity to create positive social change through mobile services, connecting people and enabling them to transform their own lives for the better. One group with much to gain are women, who even in the 21st century all too often experience fewer and more limited opportunities than men in critical areas such as education, health and employment.

However, as in so many other spheres, access to mobile technology is not equally distributed. There is a large gender gap in mobile ownership, with an estimated 300 million fewer women than men around the world owning a mobile phone.<sup>1</sup> We estimate that 91 million of these women live in the markets where Vodafone operates, and if growth rates remain on the same course this figure could rise to 142 million by 2020.

For our industry this represents a massive unfulfilled market, but much more importantly, as mobile becomes more central to our lives, this gap contributes to the unfulfilled potential of many millions of women's lives. It means less opportunity to earn a living and restricted chances for both women and their children. As a leading global operator, we are seeking to understand better the barriers that prevent women from using mobile technology, and to work with our partners in government and civil society to help to overcome these.

Driven by our belief in the transformative power of mobile, Vodafone and the Vodafone Foundation are developing new approaches and services tailored to women's needs. A selection of these are profiled in this Report and show how the right mobile services can empower women through the low-cost delivery of educational content, increasing feelings of safety and inclusion, improvements in maternal health and greater productivity for women entrepreneurs.

Our research shows that scaling up these services across our markets could benefit 8.7 million women in 2020, and create economic benefits to women and society worth \$6.6 billion annually by 2020. This is a significant and exciting opportunity. What's more, increasing the rate at which women become mobile phone owners and ensuring that the gender gap in mobile ownership does not grow, could have an economic benefit for women and society worth \$22.3 billion.

These projects show us that when women have access to mobile technology and services they use it to improve their own lives and those of their children and communities. By enabling greater mobile ownership and making life-enhancing mobile services more widely available, we can support women on this journey.

Vittorio Colao, Chief Executive, Vodafone Group Plc

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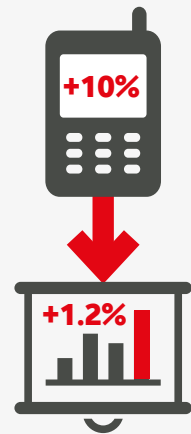
**The right mobile services can empower women through low-cost delivery of educational content, increasing feelings of safety and inclusion, improvements in maternal health and greater productivity for women entrepreneurs.**”

# Mobile and women's empowerment

## Benefits of mobile

Mobile technology boosts economic development through job creation and greater productivity and efficiency.

Countries benefit from 1.2% more GDP for every 10% increase in mobile penetration



**99%**  
Internet subscriptions via mobile in Kenya

**70%**  
of adults use M-Pesa

Mobile connects people to core services. In Kenya 99% of internet subscriptions are via mobile and 70% of adults use our mobile payment service M-Pesa

For women, new mobile services can improve their quality of life and livelihood

**90%**  
of women feel more empowered with a mobile

**41%**  
have greater income generation opportunities

## The mobile gender gap

But many women miss out because they don't own a mobile phone.



**300 million fewer women** than men own a mobile

**15%**  
of women in areas with mobile coverage never use a mobile

In Vodafone's 27 markets the GENDER GAP is **91 million**

Addressing the gender gap is a significant commercial opportunity

Addressing the gender gap will help more women access beneficial services

## Women's empowerment – some of the challenges

### Education

35% of women in Egypt are unable to read and write

### Health

Two million women in Asia and sub-Saharan Africa are living with obstetric fistula

### Safety

One in four women in the UK will experience domestic violence

### Work

29% of women in India are economically active

### Loneliness

In Spain 28% of people over 65 report feeling lonely

## Benefits at every life stage

The mobile services profiled in this report could enable 8.7 million women in Vodafone's markets to improve their lives by 2020.



Making these services available can encourage greater mobile ownership among women

# Introduction

from Andrew Dunnett, Director,  
Vodafone Foundation



The Vodafone Foundation is delighted to be supporting the publication of this Report. As you will see as you read the Report, the Foundation is engaged in supporting a number of projects which combine both our grant-making activities and mobile technology in making a difference to the lives of women in a number of markets in which Vodafone operates. This is part of the Foundation's Mobile for Good programme. The Report celebrates these projects and the work of those involved and also poses the question – what would the benefit to women and to society at large be if projects such as these were taken to scale and achieved an industrial scale of growth? This reflects the Foundation's commitment not solely to the development of pilots but rather the Trustees' ambition to see projects which lead to transformational change.

In order to understand this more deeply, the Report looks at the benefits for women and society and provides some financial modelling for how the engagement of commercial players could achieve industrial, sustainable growth in these areas. Accenture has provided the modelling and, given the public benefit and understanding which the Report seeks to generate, these are shared openly for all in the mobile industry to understand and share. It is the Trustees' hope that our collaboration with Oxford University and Accenture in the delivery of this Report will stimulate not only the expansion of existing charitable programmes but will also seed other philanthropic, social enterprise or commercial initiatives.

**Andrew Dunnett, Director, Vodafone Foundation**

## Summary of methodology

This Report includes a summary of research conducted by Accenture Sustainability Services. In addition to assessing the impact of increasing mobile ownership among women, Accenture modelled the potential social, economic and commercial impact of five services in the areas of education, health, safety, work and loneliness in 2020. These services are:

1. mobile learning for adult literacy
2. Text to Treatment: using mobile payments to cover travel costs to receive maternal healthcare
3. an alert system for women at high risk of domestic violence
4. a mobile inventory management system for rural female retailers
5. new services to connect elderly people to their family, friends and carers.

Modelling for each service focuses on relevant markets from the Vodafone's 27 countries of operation:

- emerging: India, DRC, Egypt, Fiji, Ghana, Kenya, Lesotho, Mozambique, Qatar, South Africa, Tanzania, Turkey



- mature: Albania, Australia, Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Malta, Netherlands, New Zealand, Portugal, Romania, Spain, UK.

For a list of individual authors and contributors see Appendix 1, page 36. Further information on Accenture's methodology is included in Appendix 2, page 38.

# Context

by Professor Linda Scott,  
Saïd Business School,  
University of Oxford



## Narrowing the gender gap with mobile technology

The world community has discovered the enormous benefits that can come from closing the gender gap in education, work, health and leadership. By granting women greater freedom and investing in girls, nations can improve productivity, increase competitiveness and create greater prosperity for all citizens. These economic benefits result from better use of human capital, but also from reducing costs associated with gender inequality, such as high levels of violence and fertility. For instance, the IMF has recently estimated that the gender gap in labour force participation reduces GDP growth.<sup>2</sup>

Historically, the approach to women's equality has focused mainly on rights. While legal freedoms remain important, it is increasingly clear that undoing the complex practices creating gender inequality requires multiple tactics and new tools. Multinational corporations can be important partners in this effort because they bring new expertise, strategies and resources to the table.

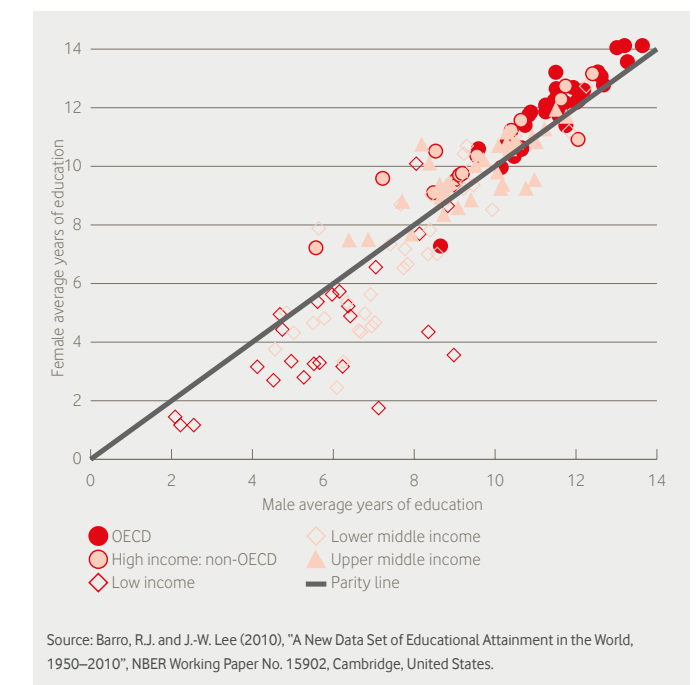
A salient theme emerging from global efforts to tackle the gender problem is the need to grant access – to education, to resources, to finance and capital, and to the larger community. Cultural norms often entail control of women's whereabouts and communications. Such practices can be barriers that limit women's access to education, health and jobs.

Products and services that can help women transcend these barriers therefore hold promise for closing the gender gap. A mobile device, for instance, can connect a woman to the outside world in a uniquely private, portable way, opening up previously unattainable opportunities. The applications described in this Report have been selected to demonstrate how mobile can address the main access challenges: education, healthcare, economic participation, safety and community. Each example is merely illustrative, a thumbnail sketch of larger benefits that might be achieved if access were expanded.

## Building nations by educating girls

Retaining girls through secondary school is now believed to be the most powerful and rapid intervention available to promote national prosperity. In many developing countries, however, girls are withdrawn from school at the primary level, and few who go on to secondary education complete it.

### National wealth and gender parity in education

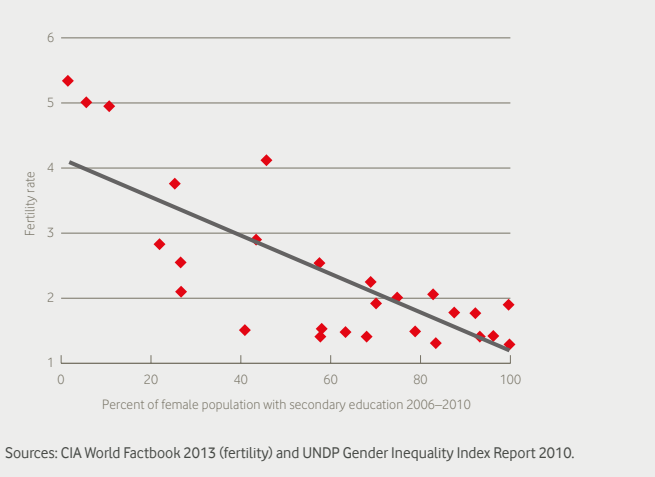


**Figure 1:** The investment in girls' education is strongly correlated with national prosperity. While poorer countries often invest less in education because of scarce resources, the failure to educate girls actually continues the cycle of poverty through a multiplier effect involving reproductive outcomes.



Failing to cultivate half the nation’s human capital has devastating consequences on economic development, affecting not only the generation of girls pulled from school, but also their children. Generally speaking, the longer girls stay in school, the longer they postpone childbearing, ultimately reducing overall fertility rates. Among educated women, disease transmission and domestic violence are lower. Further, infant and maternal mortality are closely associated with adolescent fertility, so later births mean lives saved. Young mothers who are more mature and better educated at first childbirth take better care of their own children and are more likely to insist they be allowed to stay in school.<sup>3</sup> Educating girls thus has a positive follow-on effect for entire communities and it lasts for generations.

Fertility and female education



**Figure 2:** A nation’s fertility rate is the number of children a women will have, on average, during her lifetime. In this graph, we can see that the fertility rate declines as women become better educated. The data points represent the nations in which Vodafone operates.

The benefits of education, even basic literacy and numeracy, are also important to the woman herself. It is not much good to have rights if you do not know what they are. A woman who can read gains access to knowledge that can potentially change her life. Finally, an informed citizenry is essential to a functioning democracy.

Strengthening families through better women’s health

“Reproductive health”, a term that denotes an array of women’s health services including antenatal and postnatal care, as well as gynaecological check-ups, family planning and treatment for sexually transmitted diseases, is the intervention that rivals girls’ education in its potential for impact on national wellbeing. When women have sovereignty over their own sexuality, disease transmission is reduced, healthier babies are born, and stronger families are created.

Pregnant women and their babies must have access to appropriate healthcare to ensure survival and give the child the best chance of thriving. Getting healthcare to women in the rural areas of developing nations meets with an obstacle course of long distances, poor communications, higher costs and inadequate facilities. Childbirth presents an acute moment of risk to both mother and child, in which a rapid and informed response is essential. Children of mothers who are well cared for during gestation are far more likely to survive and be healthy.<sup>4</sup> Further, throughout childhood, the offspring of empowered women get better healthcare, as well as better food and education.<sup>5</sup> Where maternal and child care can be supported through communications technologies, populations can achieve better survival rates and overall health.<sup>6</sup>

Maternal and child health affected by skilled care at birth

	Births attended by skilled health personnel (%)	Maternal mortality ratio (deaths per 100,000 live births)	Infant mortality (deaths per 1,000 live births up to 1 year)	Mortality, children under 5 (per 1,000 live births)
Tanzania	43	460	38	54
Kenya	44	360	49	73
India	53	200	44	56
Ghana	57	350	49	72
Egypt	79	66	18	21
South Africa	91	300	33	45
Turkey	91	20	12	14
New Zealand	95	15	5	6
Germany	99	7	3	4
United Kingdom	99	12	4	5
Australia	100	7	4	5
Italy	100	4	3	4

Source: United Nations Gender Inequality Index Report, 2012 and World Bank Databank, World Development Indicators, 2012.

**Figure 3 :** The more often childbirth is attended by a skilled professional, the less often mother and baby die. Mortality among children under five is affected by a number of conditions, especially hygiene and water cleanliness. However, the broad pattern between maternal care and the subsequent outcomes for mothers and children reflects the fact that pregnant women who are well cared for give birth to bigger, healthier babies who are stronger in the environment.

Ensuring women’s safety

Violence against females is a worldwide problem. Though some particular practices, such as bride burning, female infanticide and honour killings, are peculiar to specific cultures, all nations experience intimate partner violence and rape to a disproportionate degree against females. Poverty and conflict both tend to escalate violence against women, which in turn causes an increase in unwanted births and disease.

The effects of violence on future generations are many. Beatings can occur when women are pregnant, potentially triggering a crisis for both mother and child. Violent incidents are often witnessed by children, who are likely to suffer negative effects on mental health and learning ability, as well as becoming prone to the pattern as adults.

Because of shame and secrecy, and the difficulty of prosecution, many women feel that they cannot reach out for help for fear of retaliation or because they have been taught to believe the attacks are justified. Thus, it is essential to provide information to the victims of domestic violence about their own right to safety, as well as provide ways for them to reach out for assistance, even beyond their own communities.

In a path-breaking cross-cultural study, the World Health Organization (WHO) determined that domestic violence is more likely where negative attitudes towards women, especially tolerance of violence against them, prevail and when there is greater economic inequality between genders. For individual women, risk factors for intimate partner violence include their level of education and degree of financial autonomy, as well as any past history of violent attacks at home. For both the individual and the perpetrator, witnessing domestic violence as a child increases risk as an adult.<sup>7</sup>

Generating growth through economic inclusion

International economic institutions such as the World Bank, the International Monetary Fund, the World Economic Forum and OECD lament the dampening effect that constraints on women’s earning power have on global growth. Around the world, women are less often engaged in formal work, are paid less than men, start businesses less often, and are limited in earning opportunities by greater burdens of domestic labour.<sup>8</sup>

In developing countries, women usually work in agriculture, where pay is lower than in non-agricultural jobs, which are often scarce and more likely taken by men. Indeed, women do most farm work, but they often labour on land owned by their husbands or fathers and receive only subsistence. Though nations encourage entrepreneurship to stimulate growth, women start businesses less often than men, often constrained by limited legal rights and family obligations.<sup>9</sup>

In developed countries, women now make up nearly half the formal workforce: 70% to 90% of women in these countries are employed. Once employed, however, they do not advance as men do. All countries have a ‘leaky pipeline’, in which women

may begin at entry level in comparable numbers to men, but their representation decreases the higher up the ladder you look.<sup>10</sup> Women are paid less than men for similar work even where equality legislation makes discrimination illegal. In OECD countries, women actually experience even greater pay disparity with men at top levels.<sup>11</sup> The private sector’s failure to promote women to positions of leadership makes poor use of their nations’ resources, but studies also show that integrating women into company leadership, especially at the board level, produces better corporate governance and accountability, as well as higher profitability and reduced risk.<sup>12</sup>

Worldwide, women struggle to earn and also manage their family obligations. Yet, in the OECD countries, dual-earner families are now the norm and the contribution made by their income is essential to the wellbeing of households. Nevertheless, women still perform more unpaid domestic work than men in all countries.<sup>13</sup>

Gender gap in employment and wages

	Female labour force participation (% relative to men)	Female representation in non-agricultural employment (% of total)	Wage equality for similar work (% relative to men)
Australia	84	47	67
Germany	86	48	61
Italy	69	44	51
New Zealand	86	51	75
South Africa	75	45	65
Spain	82	47	54
United Kingdom	85	47	68
Ghana	95	32	72
Kenya	86	32	67
Tanzania	99	31	68
India	36	18	62
Turkey	40	23	64
Egypt	32	18	77

Source: World Economic Forum Global Gender Gap Report, 2013.

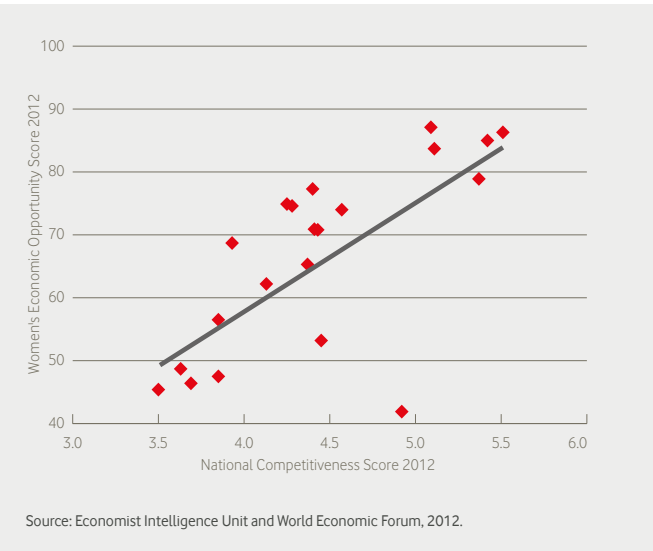
**Figure 4:** A global pattern is reflected in a selection of Vodafone’s markets. In the first group of countries, women have achieved high levels of labour force participation relative to men and command roughly half the non-agricultural jobs. However, they are not paid equally for similar work. In the least-developed countries, women often participate in the economy as often as men; however, they are much less likely to have non-agricultural jobs. A third group of countries has low levels of female labour force participation, but also low representation in the non-agricultural sector. Wage equality is not achieved.

Wage equality can be measured in several ways, but all measures show a notable disparity. This measure is from a survey conducted annually by the World Economic Forum.

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**Policy experts have recommended that governments take rapid steps to adopt more inclusive employment practices, to make financial markets more accessible to women, to provide business training for females, and, especially, to help women to start their own businesses.**”

Due to these conflicting demands, a growing set of countries now have declining fertility rates. The problem appears where women are forced to choose between having a family and keeping a job, especially when faced with escalating costs of supporting and educating children. The outcome is often, simultaneously, low labour force participation and low birth rates, as women choose one or the other, but not both.<sup>14</sup> A reduction in labour supply impedes economic growth and the failure to realise investment in training is inefficient, which negatively affects national competitiveness.

**Women’s economic opportunity and national competitiveness**



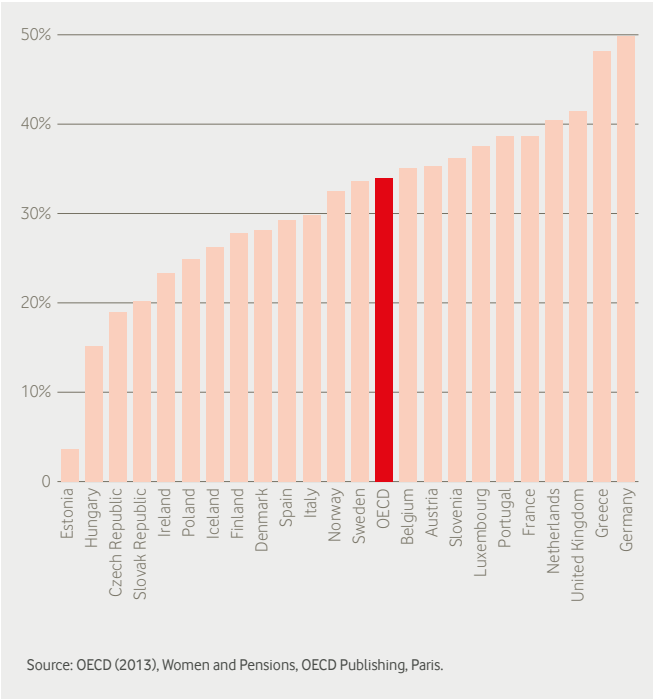
**Figure 5:** The Women’s Economic Opportunity Score is a composite measure designed by the Economist Intelligence Unit to reflect economic inclusion of women across employment and enterprise. The National Competitiveness Score is a composite measure designed by the World Economic Forum to reflect how well a country is using its resources. The data points are Vodafone’s markets.

Policy experts have recommended that governments take rapid steps to adopt more inclusive employment practices, to make financial markets more accessible to women, to provide business training for females, and, especially, to help women to start their own businesses. All these actions are believed necessary to maintain growth in developed countries, as well as to achieve wealth in developing markets.

**Ageing, loneliness and isolation**

People can experience loneliness and isolation at all stages in their lives, but elderly people are particularly vulnerable. With the decrease in physical mobility that comes with age and the propensity for modern families to be geographically scattered, elderly people can find themselves housebound. Because females in nearly every country live longer than males, they are far more likely to live alone as they age and their resources for coping are more limited. Older women are at greater risk of poverty than men because lower wages during their careers as well as family leave interruptions result in smaller savings and pensions. Because they live longer than men, but have fewer resources, older women therefore may have poorer living conditions and be more vulnerable to the negative effects of isolation.

**Gender gap in pension payments**



**Figure 6:** This graph represents the difference between mandatory pension payments to women as compared to the same payments for men. The difference reflects a lifetime of work at lower pay, as well as reduced time in the workforce.

Socially isolated people are vulnerable to a range of increased health risks. Among elderly people, loneliness increases the risk of heart disease, dementia and Alzheimer’s.<sup>15</sup> Isolation leads to poor lifestyle choices, as the lonely are less likely to exercise or choose healthy diets. Depression is more likely to afflict those who are isolated. The best antidote is to increase social connection and studies show that the health benefits of social connection rank on par with quitting smoking.<sup>16</sup> However, this can be difficult under circumstances where mobility is impaired.<sup>17</sup>

The WHO points to technology as a key way in which elderly people can maintain ties and create new communities, especially after the death of a spouse or when mobility is impaired.<sup>18</sup>

**Making way for access to ICT**

Women’s access to technology is skewed by economic development. There is little difference between genders in their use of information communication technologies in developed countries. However, in developing countries, the difference between women and men engaging with the web is as large as 40%.<sup>19</sup>

**Internet access by gender for developing regions**

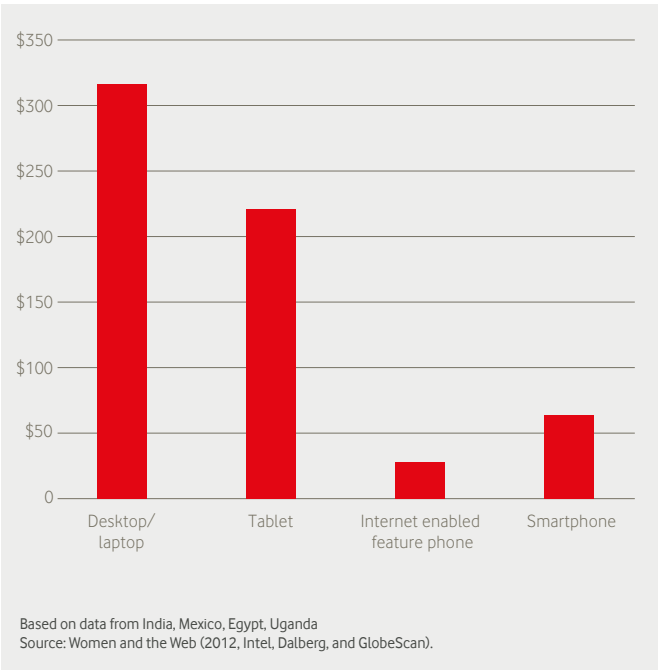
Access by gender (in %)	East Asia and Pacific	South Asia	Sub-Saharan Africa	Europe and Central Asia	Latin American and the Caribbean	Middle East & North Africa
Women’s and girls’ internet access level	29	8	9	35	36	18
Men’s and boys’ internet access level	37	11	16	49	40	28
Gender gap (weighted)	20	33	43	29	10	34

Based on data from 144 developing countries.  
Source: Women and the Web (2012), Intel, Dalberg, and Globescan.

**Figure 7:** For women, communications access is less than men, regardless of how it is delivered. Reasons given for the disparity vary from price and perceived necessity to ‘technophobia’, permission and fear of communicating with dangerous individuals.

Because evidence suggests that technological engagement fuels economic growth, it is in the best interests of developing societies to encourage greater access to these technologies for women.<sup>20</sup> As has been outlined in this report, there are further social benefits that may occur through communication services that provide women with access to education, health, jobs and safety, as well as services that open up community networks. Yet, in policy making, most governments still do not recognise the imperative to give women access to technology.

**Average comparative pricing for internet platforms**



**Figure 8:** Mobile phones may be a better point of entry to the internet than other ICT devices for women in some populations. First, mobile is more likely to be accessible in the remote places where women are most disadvantaged. Second, the mobile platform tends to be cheaper. The ability to use a mobile phone in between household tasks, in brief moments of quiet, while on the move, without the observation of others, and after or before normal business hours makes this technology helpful for women.

The challenge is to help women overcome the obstacles to access, even those barriers they have internalised. Providing easy-entry products at lower prices can mitigate concerns over costs and may help overcome potential gatekeepers’ objections.<sup>21</sup> Positioning technologies as appropriate for women in the eyes of male decision makers – for example with arguments that mobile phones improve the safety of families – can be effective. Linking women to other female mobile users creates a community, as well as a gender-friendly way of learning to use the product. Similarly, providing information and services that support traditional activities – childcare tips or recipes, for instance – can increase the perceived value of mobile.<sup>22</sup> As women become familiar with communications technologies, they tend to widen the scope of their applications, just as men do.<sup>23</sup> The objective, then, is to open the door to communications technology for women by designing applications that seem appropriate, even in traditional settings, and that address pressing social needs in a way that is actionable for women.



# Education

## Improving literacy through mobile learning

Almost 35%<sup>24</sup> of women in Egypt are unable to read and write, and the figure can be even higher in rural areas. Now through the Knowledge is Power programme, mobile technology is opening up new opportunities for women in Egypt to learn in a way that suits them.

187,000

people enrolled  
in classes



60% 

of those who  
complete the course  
are women

12,000



youth worker  
volunteers  
recruited

Knowledge is Power is a project supported by the Vodafone Egypt Foundation in partnership with Egypt's General Authority for Literacy and Adult Education and local NGOs. The goal is to use classroom and mobile learning together to improve literacy skills, and help remove a major barrier to individual empowerment, economic growth and democratic participation in Egypt.

One of the key components of the project is the Vodafone Literacy App. This free mobile application (app) uses pictures and a talkback function to make learning easier and more flexible. It can be downloaded onto any Android smart phone, Nokia smart phone, iPhone and some feature phones and enables women to learn at home, in their own time and around other commitments. The app is used in combination with local classroom sessions run by trained volunteers and classroom facilitators.

The project pilot was launched in 2011, and so far 12,000 youth worker volunteers have been recruited to provide literacy education in rural communities. By the end of 2013 around 187,000 people had enrolled in the Knowledge is Power classes and over 94,000 people had successfully completed the literacy programme, of which over 60% were women. Four million people found out about the programme via the Vodafone Egypt Facebook page. The classes are now being rolled out to an additional 120,000 people by the end of 2014.

The project is open to all, but is particularly focused on solutions that help women overcome some of the barriers they face to improving their literacy skills. For example, while the

Literacy App enables women to learn at home, the classroom sessions are held in venues accessible to women such as local community centres, schools, mosques and even the homes of many volunteer teachers in remote villages. Many of the youth volunteer teachers and facilitators are women.

The Knowledge is Power project is implemented by three Egyptian NGOs, the Life Makers Foundation, the Coptic Evangelical Organization for Social Services (CEOSS) and Rotary Egypt. Their strong local presence enables them to connect with and enrol harder-to-reach women, including those in remote rural communities. The NGOs also recruited the teaching volunteers, many of whom are recent university graduates. They ran training workshops to build the skills of facilitators and supervisors in the literacy curriculum and one-week camps to train the volunteers in literacy education techniques.

### Key features

- ◆ Projects are run by local NGOs
- ◆ Classroom sessions held locally
- ◆ Literacy App enables study at home or when out and about
- ◆ Participants can complete exams online and gain an official qualification

“

I faced lots of problems due to my lack of education. I signed a document for my neighbour without knowing what it contained. I signed away my house, my jewellery and my little shop. Since then, I challenged myself to learn and be cautious before I sign any document. I have changed a lot, I feel that I came out from darkness to light. ”

**Wafaa Mohamad Ramadan uses the literacy mobile application to help her learn both inside and outside the classroom. She has started to teach her neighbours and her children how to use it too.**



## Education and literacy – the challenge

by Professor Linda Scott

My team at Oxford has done a great deal of fieldwork investigating the barriers preventing so many girls from finishing school. We have interviewed hundreds of schoolgirls, as well as dozens of parents, teachers and health professionals. The factors keeping girls from finishing school are complex, but they tend to boil down to a single reality: people expect that when girls reach their teen years they will move into roles focused on reproduction, instead of continuing with their education.

Yet, in all my travels, I have been struck by the keenly expressed desire of girls to become educated. Even in

the poorest and most remote villages, girls say their dearest hope is to finish school. Mothers are often deeply passionate about keeping their children, male and female, in school, but are sometimes helpless against community norms that require girls to drop out and marry.

Having the flexibility to attend classes in a nearby environment thought suitable for women and to fill in with assignments that can be accomplished after chores are done or between tasks, even secretly if necessary, would give a young woman who wanted to continue learning the ability to do so. The ability to deliver education in a modular form using mobile telephony is a breakthrough for girls – and even grown women – struggling with such circumstances.

## The opportunity

Potential to reach  
**7.2 million**  
illiterate women  
by 2020



**1.2% increase**  
in female literate  
population by 2020



**\$3.4 billion**  
annual economic  
benefit through  
increased employment



**0.4% increase**  
in secondary school  
enrolment



Improving adult literacy skills and ensuring that the next generation of young women learn to read and write will have significant benefits for individuals, families, communities and whole economies.

There is a large potential market for programmes like Knowledge is Power, with an estimated 187 million illiterate adult women living in Vodafone's markets.

Our modelling found that if services like Knowledge is Power are compatible with feature phones and smart phones, they could reach 7.2 million women by 2020, across Vodafone's markets. The majority of these customers (around 70%) would be in India, with its large population and high levels of female illiteracy. This level of scale up could result in:

### Improved literacy

The programme could successfully support literacy for an estimated 5.3 million women by 2020 (assuming some women will not complete the programme), leading to an estimated cumulative increase in the number of literate women of 1.2%.

### Economic benefits

An increase in literacy provides better economic opportunities and our research suggests that around 17% of women users would benefit from increased employment. This could generate around \$3.4 billion of total economic benefit in 2020.

### Greater school enrolment

Improvements in women's literacy often have knock-on benefits for their children and families.<sup>25</sup> Studies show that in emerging markets the estimated increase in women's literacy could result in a cumulative increase in children enrolled in primary school of 0.1% by 2020 (equivalent to 47,000 more children attending school). The figure is higher for secondary school enrolment, at 0.4% by 2020.



## Looking ahead

To successfully scale up this or similar projects, mobile operators must collaborate with governments and NGOs and work together to overcome a number of potential challenges.

Most significantly, better access to mobile for women in emerging markets is needed to enable wide-scale rollout. Expanding take-up of low-cost smart phones and adapting apps to be used on basic feature phones, as well as optimising the app's data size without impacting the interactive features, so they can be downloaded quickly over a 3G network, are critical to achieving the benefits identified in our research.

Delivering successful classroom-based training requires funding from government or other donors. For example, adopting a model similar to Knowledge is Power would require an annual recurring investment of around \$30 per user. In addition, the app must be designed and tailored for each market so it reflects local language and dialect. Introducing a small fee for the app would help to recover development costs and enable this element of the project to become self-sustaining.

The Knowledge is Power project relies on having the right NGO partners who can use their local networks to enrol women who have not been reached by the traditional education system. This is particularly important in remote and rural areas. NGO partners need to be able to build trust with women and their families to overcome potential cultural barriers that prevent women receiving an education. Alongside this, our modelling suggests that introducing clearer, more targeted and locally relevant incentives for women could encourage wider take up.

“

**In our projects at ChangeCorp we see an overwhelming desire among women to learn. They want to help themselves and connect with each other as well as their family and community. The challenge is how to provide them access.**”

Louise Guido, CEO, ChangeCorp

## Mobile and education – more at Vodafone

### Learn out of the Box, India

The Vodafone Foundation in partnership with Pratham Education Foundation is using mobile technology to improve teaching for 50,000 underprivileged children in India. Using a cloud-based platform developed by the Vodafone Solutions Team, teachers can improve the classroom experience with rich graphical and multimedia content coupled with innovative methods of teaching. The technology divide is bridged by using simple TVs and Android-based Webbox to deliver this enriched experience across 12 states via Vodafone's network. Students get to explore the subjects they are learning about via the internet in an interactive and engaging way.

### Education for refugee children

Refugee children often miss out on a quality education. The Vodafone Foundation is partnering with UNHCR and selected NGOs to bring quality primary school education to thousands of children in refugee camps in the Democratic Republic of Congo, Kenya and South Sudan. This programme provides tablets, network support, educational content and training to enable the delivery of mobile-based educational programmes. So far 400 children in Goma refugee camp in the Democratic Republic of Congo are benefiting each week, and the programme is being rolled out to a further 60,000 children in Kenya and South Sudan.



“

Thanks to Text to Treatment I was able to receive treatment for fistula at the CCBRT hospital. My travel cost was paid for via M-Pesa. I needed two operations but now I am able to work and lead an active life. I'm an ambassador for CCBRT and I find other patients who can benefit from treatment. I've even rented a house that they can stay in while they wait to travel for surgery. ”

Elizabeth lives with her two children and husband in Mbeya, 830 kilometres from Dar es Salaam. Following her own treatment for obstetric fistula, she is now an ambassador for the hospital, referring 13 patients for treatment so far.

# Health

## Enabling women to receive life-changing medical treatment

Approximately two million women in Asia and sub-Saharan Africa are living with obstetric fistula and globally there are up to 100,000 new cases each year.<sup>26</sup> The condition is easily treatable but lack of awareness, poverty and stigma prevent many from getting help. Now, in Tanzania, the Text to Treatment mobile payment system funded by the Vodafone Foundation is enabling more women to get the help they need.

**270% increase**

in women being treated



**1,914 women**



have received life-changing treatment

**400 ambassadors**



refer women for treatment

Obstetric fistula is caused by complications in childbirth and poor maternal healthcare. In Tanzania, around 20,000 women live with the condition and a further 3,000 cases occur each year. As well as physical effects such as incontinence, women often also experience psychological trauma and social stigma and isolation. It is estimated that a woman experiencing fistula loses 11 Disability Adjusted Life Years (DALYs) through the condition – in other words, she misses out on 11 years of healthy life.<sup>1</sup>

A pioneering NGO, the Comprehensive Community Based Rehabilitation Tanzania (CCBRT), now provides free treatment, travel and counselling for women with fistula with funding from the Vodafone Foundation. CCBRT's network of over 400 ambassadors work in rural areas to raise awareness and to find and refer women suffering from fistula to the CCBRT's hospital and partner clinics for treatment. CCBRT and the Vodafone Foundation have also been working together to address a significant barrier to treatment – poverty, which means for many women even when treatment is free the cost of travel to hospital is too high.

With Text to Treatment, when an ambassador refers a new patient, the hospital sends funds via the M-Pesa mobile payment system to pay for the patient's bus fare. When the patient reaches the hospital a small incentive payment is sent to the ambassador via M-Pesa. This encourages ambassadors to stay in the programme and to seek out more potential patients. Their work is supported by radio and TV advertising.

Text to Treatment is helping CCBRT reach more patients in new areas across Tanzania, with an increase of 270% treated since the initiative began in 2009. Today it is one of the world's largest treatment centres for obstetric fistula, with funding from donors such as the Swiss and Dutch Governments, as well as the Vodafone Foundation. Since Text to Treatment was introduced in 2010, over 1,900 women have benefited from the life-changing fistula operation, enabling them to return to work and live a normal life.

Obstetric fistula, like maternal death, is a consequence of poor maternal healthcare. So together with USAID, the Vodafone Foundation is dedicating \$5 million to develop the Text to Treatment programme to help rural community health workers identify women at risk of complicated deliveries and transport them to improved facilities where they can receive a safe delivery. This is supported by an emergency referral system, utilising local taxis, for women who develop complications during labour. This will provide access to safer maternal care for upwards of 100,000 women in two large rural Districts of Tanzania in just two years.

### Key features

- ♦ Free treatment for a serious maternal health condition
- ♦ Ambassadors recruit patients for treatment
- ♦ M-Pesa used to pay for women's travel costs

<sup>1</sup>One DALY is the equivalent of one healthy life year lost, taking into account the years lost through early mortality and the years lost due to disability.



## Maternal health – the challenge

by Professor Linda Scott

On a trip into rural West Africa under the auspices of UNICEF, I learned first-hand the true challenges for women in getting healthcare. We rode for hours off the road, stopping in tiny settlements to assess clinics and interview women about antenatal care, especially vaccination against maternal neonatal tetanus, a form of tetanus that occurs because of unclean birthing conditions and kills rapidly, a risk to both mother and child.

As we pushed farther into the territory, the big hospital in the nearest city seemed a distant memory and local clinics grew smaller, dirtier and less common. Everywhere, women began to tell us that the long trek to the highway and the expense of the bus fare to the nearest healthcare provider caused their husbands or in-laws to hesitate in giving permission and funds to go for antenatal care. Only in rare cases was the woman allowed to decide for herself.

Some communities made heroic efforts to maintain their own small clinics. We saw several clean, but spare facilities. However, even these were dependent on the fashions and funding among donors, so would intermittently open and close.

When women were able to travel to a health centre, the records kept were often linked to the child, rather than the mother. This meant that inoculations were given unnecessarily because a round of treatment would begin anew with each pregnancy, even when required only once.

Something as simple as a skilled local midwife can make the difference between life and death. Yet in countries like Tanzania, Kenya, Ghana and Mozambique, only around 50% of births are attended by a skilled health professional, resulting in higher maternal and infant mortality rates.<sup>27</sup>

Having a network of trained health workers who can travel among the women in villages such as we saw, communicating with a central health facility to assess cases, arrange travel and keep records, can make an enormous difference.



## The opportunity

**\$200 million**

annual economic benefit in 2020



**0.3 million women**

could receive treatment each year by 2020



**0.7 million**



DALYs averted annually in 2020

Our research shows that the Text to Treatment programme could be used to enable treatment for a wide range of health conditions, including non-emergency procedures related to maternal health and pre and postnatal appointments. Using a similar ambassador network and incentive system would help to scale up programmes more quickly and reach more potential patients in remote areas.

We assessed the impact of using Text to Treatment for maternal health-related complications,<sup>28</sup> and our modelling indicates that it could benefit 0.7 million women across Vodafone's emerging markets between now and 2020. Within these markets, the opportunities to reach the greatest number of women are in India, Tanzania and the Democratic Republic of Congo where more women suffer complications during or immediately after childbirth.

Extending the programme could have significant benefits for those in need of treatment and wider society, including:

### Improved access to treatment

Using Text to Treatment to improve access to treatment for maternal health complications could, by 2020, result in 0.3 million women receiving treatment annually and being able to return to a normal life.

### Better quality of life

This level of scale up could potentially avoid a cumulative 1.8 million DALYs (years lost to disability or ill health) by 2020.

### Economic benefit

The programme could generate an annual economic impact of \$200 million in 2020, by enabling women to return to work and earn a living.

## Looking ahead

Text to Treatment can only be effective if healthcare facilities and infrastructure exists. Rolling out the Text to Treatment model for maternal health conditions will require significant and ongoing donor funding for infrastructure, treatment costs and travel of around \$380 million by 2020, or approximately \$540 per patient. It may be possible to use local health centre networks to reduce some of the investment costs.

Using Text to Treatment depends on medical and transport infrastructure being available in each market. However, the programme can help to generate demand for health services and can enable hospitals to operate at capacity and improve efficiency, making projects more attractive to potential donors. The availability of M-Pesa or other money transfer systems is also needed in each market.

Establishing and expanding the ambassador network, for example by recruiting previous patients, and putting the right incentives for these ambassadors in place, will help to ensure the programme's success.

“

**Mobile technology changes lives. Many women simply cannot afford transport to hospital. Vodafone M-Pesa allows CCBRT to cover these costs in advance. In 2013, 72% of our fistula patients would still be living in shame and isolation if it weren't for Text to Treatment.** ”

Erwin Telemans, CEO, CCBRT

## Mobile and health – more at Vodafone

### Supporting healthcare workers, South Africa

Worldwide, there is a shortfall of around 4.3 million health workers and this is felt most acutely in emerging markets. Helping health workers to be more efficient and more productive is essential to allow them to reach as many patients as possible.

The Nompilo mobile solution lets nurses and community healthcare workers in South Africa, most of whom are women, review and update patient records remotely, via their handset, cutting down trips back to their office and reducing time-consuming paperwork.

### Bringing life-saving vaccinations to more children, Mozambique

More than one million children die every year from vaccine-preventable diseases. Vodafone is partnering with the pharmaceutical company, GlaxoSmithKline, the Mozambique Government and USAID to use mobile technology to increase childhood vaccination rates. The mVacciNation project includes text message alerts to remind mothers to bring children for vaccination and enables health facilities in remote locations to monitor and order stocks of vaccines, so that when patients arrive they can be sure that vaccines will be available. The project expects to increase vaccination rates by around 5%. This programme kickstarted a three-year partnership with the GAVI Alliance to explore how health ministries in sub-Saharan Africa can use such mobile technology solutions to improve access to vaccines.



“

He physically threw me out of the house but because my children were in there I went back in and pushed that button. Six police people came and they took him away. And honestly, I have to say it probably saved my life. Afterwards I didn't know how I was going to get through it but I did and now, I am really happy. I could have been a statistic but I'm rebuilding my life and career. When you really need help you can't get to a phone, but if you have a TecSOS handset you've got help and that makes the difference.”

# Safety

## Empowering women who experience domestic violence

One in four women in the UK will experience domestic violence during their life.<sup>29</sup> Those affected live in fear, often becoming virtual prisoners in their own home. TecSOS enables women at risk of domestic violence to connect to the emergency services and get help more quickly, reducing fear and helping them to rebuild their lives.

Over 3,000  
current users



in the UK



Over  
1,000

activations

11%  
improvement



in police  
response times

31,000  
devices

in use across  
six countries



TecSOS looks just like an ordinary handset, but is used only in an emergency. When a woman is being attacked or threatened she can connect immediately to the emergency services with one press of the central button. They know who is calling, her case history and approximate location, enabling them to respond quickly.

Every woman supplied with the handset is registered with the emergency services, so they can recognise and prioritise TecSOS calls. This means the system works even if the woman is not able to speak to the operator after pressing the button.

handsets and that using TecSOS results in an 11% improvement in police response times. Several lives have been saved due to police being able to get to victims more quickly. Since all calls made via TecSOS record the situation, the service is also generating evidence that can be used in bringing criminal prosecutions against attackers.

The TecSOS technology was developed in Spain, where a nationwide TecSOS programme now operates, by the Spanish Red Cross, the TecSOS Foundation and the Vodafone Spain Foundation. It was launched in 2011 in the UK with the Thames Valley Police Force in conjunction with the Thames Valley Partnership. It is now live in 19 UK police forces and being rolled out across 12 more. It is also being tested or rolled out in Hungary, Ireland, Italy and Portugal, with a further four countries planning pilots during 2014.

### TecSOS Handset



Since 2011, over 5,600 women have been issued with the TecSOS handset in the UK and handsets have been activated over 1,000 times. Results show that users feel safer with the

### Key features

- Service for women at high-risk of domestic violence
- Handset with easy-to-use central button
- Immediate connection to the emergency service
- Location provided to police
- Calls recorded as evidence for prosecutions



## Domestic violence against women – the challenge

by Professor Linda Scott

Years ago, I volunteered to answer the hotline at a women's shelter located in a small town in the American Midwest. During my training, it was emphasised that we must make an accurate assessment of the caller's situation and decide how to handle it very quickly. An abused woman usually has only a few minutes of privacy before she is discovered speaking to the outside world.

Though men are sometimes the victims of intimate partner violence, this is a crime that is overwhelmingly committed by men against women and it is often a pattern of repeated, escalating incidents. The behaviour is motivated by the desire to control the partner and the violence usually follows steps to circumscribe the victim's ability to communicate with others, to dictate her whereabouts, and to gain control of her finances. So, by the time the violence

escalates to a severe level, the victim finds herself unable to reach out and without the resources to leave on her own. Attacks usually escalate until the victim fears for her life. Yet it is extremely dangerous to leave: most homicides in such situations occur when the victim tries to escape.<sup>30</sup>

Domestic violence remains a significant problem in the UK, representing between 16% and 25% of all violent crime reported. Two women, on average, are killed by a male partner each week, constituting about 42% of all female homicides. One of the leading causes of death among women in the UK is suicide: 33% of those attempts are attributable to partner violence. Where children are present, they witness about 90% of the attacks, and often experience a battery of physical, mental, social and educational problems.<sup>31</sup>

Even conservative estimates of the costs to the British economy are breathtaking. Treating the physical injuries alone is £1.2 billion a year, or 3% of the total National Health Service budget. Lost economic output is £2.7 billion a year. The cost to the legal system is £1 billion annually.<sup>32</sup>



## The opportunity

**0.1 million women**



could be helped annually by 2020

**80,000 incidences**



of violence could be avoided by 2020

**\$0.8 billion**

annual economic benefit in 2020 through increased productivity and reduced costs

Between 2013 and 2020, TecSOS has the potential to cover over 0.5 million women at a high risk of domestic violence across Vodafone's mature markets. By 2020, 0.1 million women could be covered each year. The most significant opportunities (63%) are in Germany, Spain and the UK, due to existing and planned rollouts of this solution in these markets.

Preventing domestic violence has significant benefits for women and society. Our modelling indicates that this level of scale up could result in:

### ✦ Fewer incidents of serious violence

Faster police response times could result in almost 80,000 incidents being avoided between 2013 and 2020.

### ✦ Better quality of life

Our research shows that women taking part in the TecSOS programme feel safer and more secure and are able to live more normal lives. Surveys in the UK, for example, found that victims' reported levels of fear dropped from 7.9 to 3 out of 10.

### ✦ Economic benefit

The programme could generate an annual economic impact of \$0.8 billion in 2020 by reducing costs associated with healthcare, policing, security and legal fees as well as enabling women to return to work.

## Looking ahead

TecSOS and similar solutions are cost effective to run in comparison with other alarm systems and can pay for themselves through the positive financial impact of preventing serious crimes. Initial pilots used Vodafone Foundation funding, but the model being adopted in the UK, where police forces lease or buy handsets from the mobile operator at a not-for-profit price, will enable the service to become self-sustaining.

Domestic violence against women is an under-reported crime, with victims often being assaulted several times before reporting it to police. To achieve the full potential of the TecSOS service, women need to be encouraged and supported to come forward earlier.

The technology behind TecSOS could also potentially benefit services in other areas of crime prevention or social care, such as for victims of repeat burglary, witness protection or elderly people living alone.

## Mobile and safety – more at Vodafone

### Services for Alzheimer's patients, Spain

TecSOS technology has been applied to aid the welfare of Alzheimer's patients. It can track if a user is out of their usual safe environment or if there is an indication of any abnormal activity, they are immediately connected to the Spanish Red Cross' call centre where operators can see the patient's details and location. A response can then be coordinated.

“

**TecSOS gives victims of domestic abuse the confidence to start to take those first difficult steps towards rebuilding their self-esteem and returning to normality. In short, it gives them their lives back. ”**

John Liversidge, UK TecSOS Project Manager, Thames Valley Partnership



“

Previously I'd never even seen a mobile phone. Now I have my own mobile with the RUDI Sandesha Vyavhar technology. Thanks to the training I can use it to place orders and record sales and other transactions. I used to have to come to the centre to get my stock and waste the whole day and a lot of money on travelling. Now I can just send a text message and stock is delivered to me. I'm more productive and have saved a lot of time that I'm using to approach more customers and increase my sales. My income has gone up to around Rs.5,000, out of which I save Rs.500 regularly in a savings group and pay for part of our household expenses to provide a better life for my family. I've also been able to take out a loan to buy cattle and to invest in farming. I'm repaying this in instalments with my income from my RUDI business. Being a part of the RUDI network and a member of SEWA has changed my life and my family are proud to see how capable I am. ”

**Ramilaben Somabhai Parmar is a RUDIben, one of a large network of rural women entrepreneurs in Gujarat, who markets and distributes rural farm produce brought directly from farmers. Ramilaben never attended school and was married at a young age. She joined the RUDI programme in 2005 and is now a coordinator of the local RUDI team and runs several self-help groups in her village.**

# Work

## Improving productivity and quality of life for women retailers

In India, just 29% of women are economically active compared with over 80% of men.<sup>33</sup> Now women retailers in rural Gujarat are using their mobile to place orders and manage their businesses. Thanks to an SMS-based platform they can dramatically reduce travel time, increase turnover and income and improve their quality of life.



Improves  
RUDIbens income by  
**up to 300%**

**1,300 users**

since pilot started



Avoids inefficiencies  
worth up to



**20% of  
revenue**

The Rural Distribution Network (RUDI) in India's Gujarat region reaches 1.1 million households and provides an income for 3,000 women. These women entrepreneurs, known as RUDIbens, buy farm produce through the network to sell to customers in their local communities under the RUDI brand. Previously RUDIbens often had to travel long distances to place orders and collect stock from central warehouses. Journeys were frequently wasted because not all the produce ordered was available once they reached the warehouse.

Now the women can use the RUDI Sandesha Vyavhar (RSV) platform to submit their orders via SMS on a basic phone. Women can be sure that their order is in stock and the produce is delivered to them, significantly reducing travel time. The software records their transactions, enabling them to track sales and reduce paperwork. The system also enables the RUDI organisation to track and manage stock levels in real time and reduce inefficiencies that previously contributed to lost sales worth up to 20% of revenue.

The system was developed through a collaboration between SEWA (Self-Employed Women's Association), the Vodafone Foundation in India and the Cherie Blair Foundation for Women. A local company, Ekgaon Technologies, was contracted to write the software. RSV has been designed so that, with training, it is easy to use, even for women who are illiterate. Since the

programme started in 2013, it has been piloted with over 1,300 women. These RUDIbens were able to increase their income by up to 300%, thanks to the new ordering system.

In 2014, the solution is being rolled out to more districts within Gujarat, with the aim of recruiting and training 2,500 new RUDIbens by the end of 2014. This will be followed by a further four Indian states. To further enhance the tool, the collaborating partners agreed that integrating the M-Pesa mobile money transfer service would be a valuable addition. With money transfer available, the RUDI women could benefit from further efficiencies enabling them to spend even more time in front of customers. The proposal was awarded a GSMA Innovation Grant in 2013, which will be used to enhance the tool based on user feedback.

### Key features

- ♦ Mobile solution for small-scale retailers
- ♦ SMS platform enables remote ordering
- ♦ Reduces travel time and improves productivity
- ♦ Enables stock levels to be monitored in real time



## Work and economic empowerment – the challenge

by Professor Linda Scott

As a university professor, I often hear young women expressing worry about how they will keep up the career for which they are training and still have room in their lives for family. When I was their age, women were just entering the workplace in professional capacities and employers made room for us begrudgingly. Decades later, despite the influx of women into the workplace and the dependency of families on dual earners, little has changed in employer attitudes or working arrangements. Despite the occasional enlightened company, the vast majority of work environments are emphatically unfriendly to families, leaving young women to struggle privately with a problem that, in reality, affects the whole of society.

The unwillingness to accommodate the needs of working mothers is now making a negative imprint on the world economy, as fertility rates drop below the replacement level in many industrialised countries. Nations that have

made it relatively easier for mothers to work, such as the Scandinavian countries, have maintained fertility at replacement rate.

In some developing countries, fertility rates are also dropping, while others, especially in sub-Saharan Africa, continue to have very high fertility and the attendant consequences. In either pattern, the recommended solution is to improve female economic opportunity, whether through female-friendly formal employment, or growth in women-owned enterprises.

While the microfinance revolution of a few years ago focused on businesses among the poor, today's emphasis on women's entrepreneurship has an expanded focus that goes all the way to the highest technology and most sophisticated capital structures. The push point with the most potential, however, may be the single proprietor businesses among ordinary women of very populous countries. Such women are often beyond the reach of big training courses. Their businesses are too small to be attractive to banks, but too large to benefit from microfinance. Services that enable women to refine their financial skills, obtain market information and move product can be an important aid to growth.



## Looking ahead

To rollout programmes such as RUDI successfully, operators will need to address the low level of female mobile ownership in emerging markets, particularly in rural areas. Training will be required to improve mobile literacy and ensure that people are able to use the mobile solutions effectively.

The RUDI network is run by the NGO SEWA. Working in partnership with other similar NGOs is essential to establish new programmes, to reach and recruit participants, to deliver training and to manage supply chains. It may be necessary to spend time building capacity among NGOs to enable large-scale rollout.

Improvements to the solution could facilitate faster and wider rollout. For example, the planned integration of M-Pesa will allow users to pay for orders by mobile, further enhancing its usefulness.

There are also opportunities for larger businesses to adopt similar mobile solutions to improve their rural or remote distribution chains in these markets. This could enable the service to become financially sustainable.

“

**This mobile management information tool is the equivalent of an enterprise resource planning software for small companies. Requiring only basic mobile phones and an SMS platform to work, it has the potential to unlock huge efficiency gains for small supply chains and transform rural economies.**”

Anant Nautiyal, Mobile Technology Programme Director, Cherie Blair Foundation for Women

## The opportunity



**\$0.5 billion**

annual economic impact for women in 2020



**90 million hours**

saved per year

Our modelling suggests that in Vodafone's emerging markets, there are almost five million women working in the unorganised retail trade in rural areas. We estimate that programmes similar to RUDI could be rolled out to reach 0.2 million of these women retailers by 2020. The greatest potential is in India, Tanzania and the Democratic Republic of Congo, due to the relatively higher number of women working in the informal retail sector in these markets.

The key benefits of such a programme could include:

### ◆ Improved livelihoods

Scaling up the programme could generate an estimated annual economic benefit of \$0.5 billion for women in 2020. This is based on a 200% average increase in income

due to better productivity and reaching a wider network of customers. It would also benefit agricultural workers and farmers by increasing their income through greater sales of produce.

### ◆ Better quality of life

The reduction in travel could create an annual saving of 90 million hours, or two hours a day for every user.

### ◆ Potential commercial model

The service could be commercialised by introducing a small transaction charge of 0.5% on all orders placed. In 2020, this could result in annual revenue for operators of \$2.3 million or more, with the integration of M-Pesa or similar mobile payment solutions.

## Mobile and work – more at Vodafone

### Vodafone Farmers' Club in Turkey

Vodafone Farmers' Club uses mobile technology to give farmers the information they need to improve their harvests and livelihoods – improving Turkish farmers' productivity by an estimated €190 million in 2012/13 alone. Farmers who sign up to the service receive SMS alerts with weather forecasts, crop prices and other information that is tailored to their local area and crop types. So far there are around 800,000 subscribers, almost half of whom are small-scale women farmers.

### Connected Farmers Alliance

The Connected Farmers Alliance (CFA) is using mobile solutions to enable smallholder farmers across Kenya, Tanzania and Mozambique to increase productivity and income. The programme includes the use of solutions such as M-Pesa, the mobile money transfer system, as well as other mobile financial services. CFA has also launched mobile supply chain solutions for larger agribusinesses, to improve communications and transactions with smallholder farmers. The CFA is a US\$10m partnership between Vodafone, USAID and TechnoServe, with a goal of reaching 500,000 smallholder farmers.





“

I use the tablet and talk to people online via the Enred@te programme. It is really good for older people like me. I've made new friends, like MaryCarmen in Madrid – from chatting through Enred@te we now feel like we've known each other all our lives. I feel proud of myself that I can do this and happy I can keep in touch with friends this way. ”

**Isida, known as Isi, has lived on her own for the last 15 years. She regularly visits her local Red Cross centre in Burgos, Spain where she can use the Enred@te programme.**

# Loneliness

## Tackling loneliness among older customers

In Spain, 28% of people over 65 report feeling lonely and this figure grows to 38% for those living alone or with limited mobility. Now Vodafone Spain's SocialTV and Enred@te services are enabling older customers to use technology to interact with family, friends and carers and enjoy a better quality of life.

Loneliness and social isolation in old age can lead to sadness and anxiety and can even affect physical health. It is particularly a problem for women, since they are more likely to live longer and to live alone in old age.

In partnership with the Spanish Red Cross, the TecSOS Foundation and others, the Vodafone Spain Foundation has launched an initiative to help address these issues. The service provides new communication channels enabling older customers to interact with their peers, family, carers and volunteers without leaving home.

SocialTV was launched in 2010. It includes video and voice calling as well as an online network where users can share photos, videos and other content with each other, all accessed via a TV set top box. The service was piloted with over 100 people at home and in day centres across Spain. The partner organisations trained participants in how to use the technology and organised 'virtual hangouts' to encourage people to get online and interact.



94% of users felt that communication with other people was easier and some stated that it had helped to alleviate loneliness. 85% felt that the service met their needs and enabled them to expand their social network. The service has now evolved to become Enred@te, which can be accessed via a PC, tablet or smart phone and is undergoing further pilots.



**85% of users**

felt they could expand their social network

**94% of users**

felt communication was easier



One opportunity being explored is whether Enred@te could enable organisations working with older people to reach more individuals and use 'virtual volunteering' to complement face-to-face visits. This would enable people who would like to volunteer with older people but who have limited time or access to 'visit' remotely via video calling.

The projects have received funding from the Vodafone Spain Foundation and its partners including the Spanish Red Cross, the TecSOS Foundation and Qualcomm, the Ministries of Industry, Tourism, Trade and Wireless Reach. The findings of the pilot programmes will be used to improve understanding around how older people use technology, and how services can be designed to best meet their needs.

### Key features

- ✦ A virtual meeting place for elderly people
- ✦ Accessible via a tablet or TV set top box
- ✦ Video calls enable people to keep in touch with friends and carers
- ✦ Access to multimedia content
- ✦ Increases social participation



## Loneliness and social isolation among the elderly – the challenge

by Professor Linda Scott

Until three years ago, my 82-year-old mother was still buying season passes for skiing near her house in Colorado. Today, she is making the adjustment to living in a retirement community in the town of her birth, Austin, Texas. It is a beautiful place and several of her childhood friends are there. My sister lives nearby and our siblings can visit more easily than when Mother was in the mountains. Five grandchildren call her often.

My mother feels lonely, nevertheless. The residence has many activities, arranges trips to cultural events, and sponsors a book club. She is a sociable person and has gone to all that stuff. Her tastes, however, are a bit different from the norm in the community. On a recent trip, I casually asked her about a book she had in hand – she jumped on

the chance to talk about something she herself had chosen to read. It was clear that, despite living among many lovely people, she didn't have anyone to really talk to.

Social isolation and loneliness have long been thought to have a causal relationship. If you have more people around you, if you participate in many activities, you are not going to be lonely – or so it was thought. However, an authoritative analysis of the literature on factors contributing to loneliness in old age found something that is more complex, but resonates with experience: "Individuals who have small social networks or rarely participate in social activities do not necessarily feel lonely. Furthermore, one may be surrounded by friends and family but perceive a lack of social support and feel left out."<sup>34</sup>

Making it possible for older people to build virtual communities around shared interests offers potential to address the core problem, which, as this study observed, is not about how many people are around you nor who you live with, but whether you have people to whom you can talk – by any means – about 'important things'.

## The opportunity

Potential to reach  
**0.9 million**  
users by 2020



**\$1.7 billion**  
annual economic benefit



  
**70% of users**  
likely to feel happier  
and less isolated

Addressing social isolation among older people can improve their physical and mental wellbeing and also ease the burden on healthcare systems, family members and carers. Across Vodafone's mature markets, it is estimated that around seven million women aged over 65 are experiencing isolation, creating a significant potential market for new services.

We estimate that across Vodafone's mature markets scaling up services such as SocialTV and Enred@te could enable 0.9 million elderly people to connect by 2020 generating 98 million calls. Italy, Germany and Spain account for 55% of potential users due to relatively higher numbers of older people. This level of scale up could result in:

### Improved quality of life

Our research shows that 70% of users report finding communication easier and feel happier and less isolated.

### Increased connectivity

Users are better connected with friends and family, thanks to

the service and the training they receive in using video calling. This leads to the average user making around 100 calls per year. The services also create the possibility of a range of new virtual volunteering opportunities.

### Economic benefits

An annual economic impact of around \$1.7 billion in 2020 could be achieved. This includes \$1.2 billion resulting from approximately 18% of informal carers being able to return to paid work, due to fewer demands on their time.<sup>35</sup> Improvements in physical and mental wellbeing associated with reduced isolation would create a reduction in health and social care costs of around \$0.4 billion.

### Commercial impact

Scaling up services could generate over \$450 million in revenue for operators by 2020.



## Looking ahead

For the service to be scaled up successfully, users need access to a specially designed set top box or a tablet with a video camera as well as a Wi-Fi or broadband connection. Lack of familiarity with the technology among older users could be a potential barrier to widespread adoption and investment in training may be required to overcome this.

Services will compete with similar offerings already available, such as social networking sites. However, operators can encourage adoption by designing services with the particular needs of older customers in mind and providing them together with other desirable services at an affordable price. This would mean the service could potentially become financially self sustaining or revenue generating. Communicating the benefits of the service directly to other family members could increase awareness and encourage usage.

“

**The Spanish Red Cross has always been committed to meeting the needs of the over 305,000 elderly people that they support: social isolation being one of the most important. Solutions like Enred@te have proved to be a feasible, effective and user friendly way to keep older people connected to their peers, relatives and Spanish Red Cross volunteers. They can build a stronger social network, indirectly improving their quality of life by keeping active, caring about their physical appearance and having a better self-perception of their health.**”

Alicia de Oliva, Spanish Red Cross Technician in Social Intervention Programme for the elderly, dependent people and their relatives



“

For years I have been interested in making handcraft arts. Producing and designing my work was time consuming and I had to spend most of my day travelling to neighbouring villages and cities to sell my artwork. Thanks to Women First Mobile Advertisement Service, I started to advertise my work through my mobile phone which triggered my sales. Joining the service allowed me to save time, money, run my business effectively, and get access to a wider consumer group. Ultimately, my earning increased approximately by 500%.”

Muazzes Özer lives with her two children and husband in Kale Town, 2.5 kilometres from Mersin. Muazzes employs nearly 100 women during the preparation process of her orders.



# Access to mobile

## Overcoming barriers to mobile ownership

Around the world an estimated 300 million fewer women than men own a mobile phone.<sup>36</sup> The gender gap is largest in emerging economies and prevents many women benefiting from mobile services. Now Vodafone Turkey has launched the Vodafone Women First Programme to support women's economic empowerment, to add value for women customers and to encourage more women to subscribe.



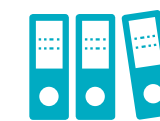
75,000

women customers  
signed up

4,700 adverts



placed in nine months  
on one of Turkey's largest  
online marketplaces



1,300 women

received business  
training

45,000  
subscribers

to information services  
in the first nine months



The Vodafone Women First Programme combines promotional offers with services that help women to increase their income, use mobile technology, acquire new skills and access information on topics such as child health. Launched in 2013, it attracted 75,000 women customers in its first nine months, of which 15% were new customers for Vodafone.

One of the key elements is the 'Women First Advertisement Service'. This enables women with little experience of technology to sell products and handicrafts on sahibinden.com, one of Turkey's biggest online marketplaces. The customer sends information about her product via text with a price and location code, attaching a photo if she has one. A third party agency, funded by Vodafone, calls the customer on her mobile to confirm the information and then posts the advert online. The service is simple to use, even for women with no previous experience. In the first nine months, 4,700 adverts were placed, which were viewed by over 240,000 people and generated sales averaging \$51 per user.

Women First subscribers can also take part in the Women's Movement in Technology Project that offers technology and business training. The project, open to all women in Turkey, was developed to address barriers preventing women using mobile technology. During 2013, 1,300 women took part to develop their skills and 312 submissions were made to a competition to win €15,000 start-up capital. Training is delivered by Vodafone's partners the Women Entrepreneurs Association of Turkey, and the Turkey Informatics Foundation through face-to-face sessions and an online portal. It is supported by the Ministry of Family and Social Policy and the Ministry of Transport, Maritime

Affairs and Communications. Finalists were mentored by senior female managers from Vodafone Turkey and the Women Entrepreneurs Association. A second round of the programme will be launched in 2014.

Alongside the support for entrepreneurs, Women First subscribers can access a range of free information services. These include an app and SMS service developed for Vodafone customers and run by the Mother Child Education Foundation, which provides information on child health and wellbeing and a Women First Lifestyle Service. Together these gained 45,000 subscribers in the first nine months.

Vodafone Turkey plans to extend the services offered through Women First to include a mobile banking app and courier services for online sellers. It is working with a number of government organisations to scale up training to reach more women in rural areas.

## Key features

- ◆ Bundle of services designed for women
- ◆ Includes business and technology support
- ◆ Access to one of Turkey's largest online marketplaces
- ◆ Information services on relevant topics
- ◆ Promotional offers

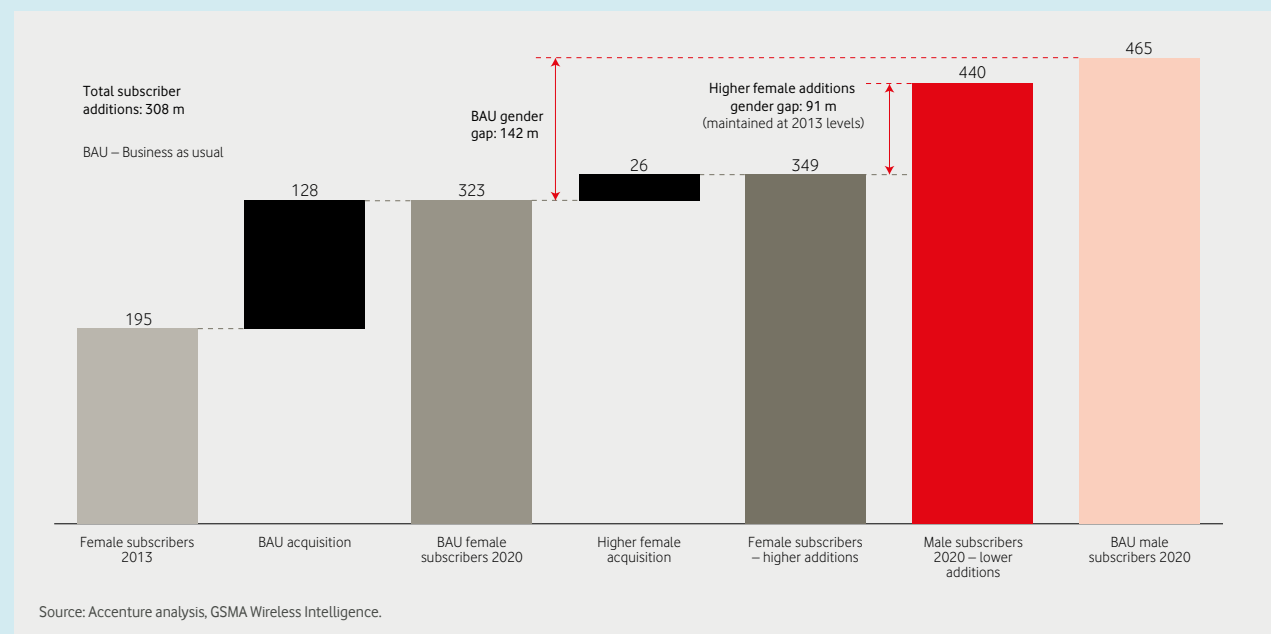


## The mobile gender gap

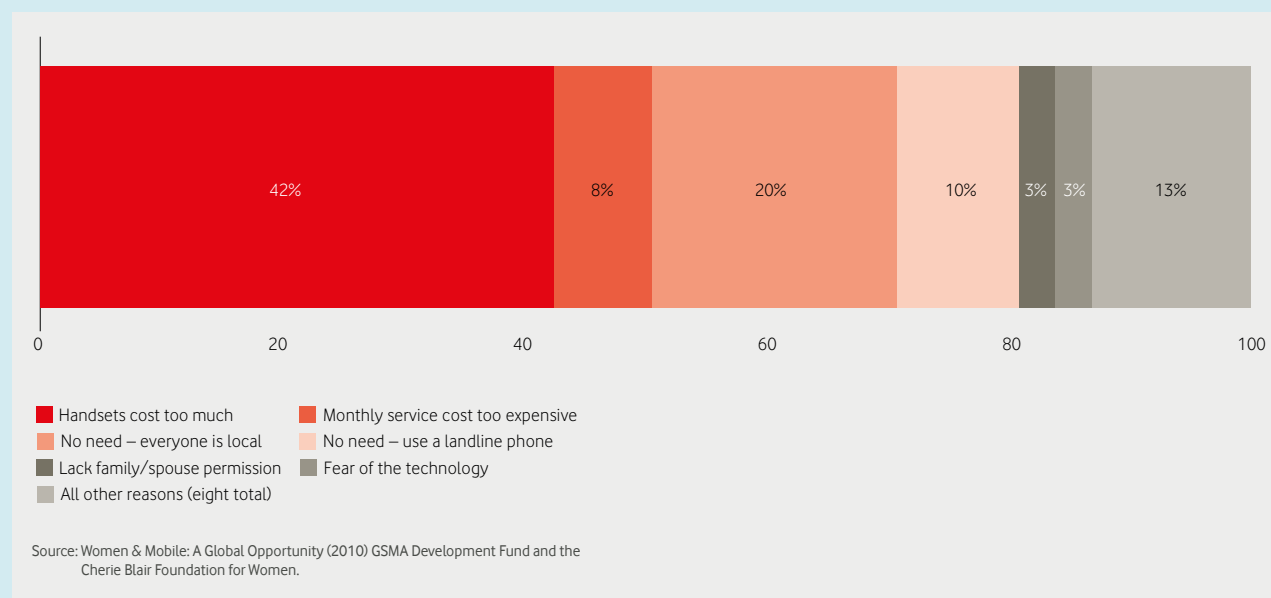
In Vodafone's emerging markets there are an estimated 91 million fewer women subscribers than men, and this gap could grow to around 142 million by 2020 if male and female new subscribers grow at equal rates, in line with overall mobile penetration forecasts. The rate of acquisition of new women subscribers would need to increase in order to prevent the gender gap from widening further. If the gender gap was to be stabilised at current levels, an estimated 154 million new women subscribers would need to be acquired in Vodafone's markets by 2020.

To achieve this growth in women subscribers, products and services are needed that help overcome obstacles to mobile ownership for women. Research by the GSMA and the Cherie Blair Foundation<sup>37</sup> has shown that cost, a perceived lack of need, fear of technology and cultural factors can all be barriers to mobile ownership among women. Addressing these factors by reducing costs and creating services that add value for women customers, for example, will be key.

### Female access to 2020, Vodafone's growth markets Subscribers (millions)



### What are the top reasons why you do not own a mobile phone? (respondents that do not benefit from mobile phone ownership)



## The opportunity

**154 million**

potential new  
female subscribers

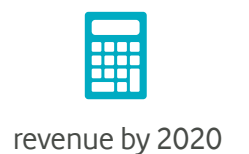


**\$22.3 billion**

annual economic benefit



**\$14.6 billion**



revenue by 2020

Addressing the barriers to access and acquiring an additional 154 million female subscribers in Vodafone's emerging markets by 2020 could create a range of social and economic benefits including:

#### ◆ Economic benefits

Research shows that women with a mobile phone have greater economic and professional opportunities. An estimated 8% of women could directly improve their livelihoods as a result of mobile ownership. A growth in female subscribers of this scale could deliver a \$22.3 billion economic benefit to society in 2020 through increasing women's access to professional opportunities.

#### ◆ Improved quality of life

Over 90% of women feel safer, more independent and empowered<sup>38</sup> with a mobile phone, so scale up would improve quality of life for around 154 million women.

#### ◆ Commercial potential

Increasing female mobile ownership could generate a cumulative \$14.6 billion in new revenue for mobile operators by 2020.

Around 80% of new subscribers would be in India, where the current gender gap in mobile ownership is relatively higher than other countries.

## Looking ahead

Our research suggests that value added services, such as those provided through Women First, are often more important in attracting and retaining new female subscribers than tariff offers. The ability to successfully develop and launch such services will be key to acquiring new female customers in emerging markets.

There are many barriers to mobile ownership for women, which vary country by country and between individuals. Different and tailored approaches will be needed to suit different markets and customer groups if the gender gap in mobile ownership is to be overcome. For example, illiterate women will make up a significant portion of potential customers but they are hard to reach through traditional marketing channels. Operators will need to find creative ways to engage them. In addition operators need to find sales channels which are accessible to women, for example by using female-run stores or using women's networks.

Services within the Women First Programme can be used with a basic handset, making them more accessible to women at lower income levels.



**The use of a mobile phone can improve women's access to literacy, health, banking, employment and business opportunities, yet a woman is far less likely to own a mobile phone, because she cannot afford it or because she isn't allowed to have one. Closing the gender gap in mobile phone access helps not only women themselves, but adds substantial revenue for mobile operators.**

Henriette Kolb, Head of Gender Secretariat,  
International Finance Corporation

## Access to mobile – more at Vodafone

### The Vodafone Angel Store, India

The Vodafone Angel Store is completely managed and run by women employees. This initiative is in line with Vodafone's commitment of encouraging diversity and inclusion in the workplace by creating suitable opportunities for its employees,

enabling them to maximise their potential. Additionally, the women customers feel more welcomed and at ease while visiting the store. We already have 26 Angel Stores across India and plan to expand this network further.



# Key findings and looking ahead

Our research shows that increasing overall access to mobile for women, together with the five other services featured in this Report, can enable millions of women to improve their lives and generate significant economic benefits for women and society.

Vodafone believes that increasing mobile ownership among women in emerging markets is beneficial in itself and is essential to enable more women to benefit from mobile services that can help them improve their quality of life. Developing and expanding life-enhancing services that address women’s needs will, in turn, encourage greater mobile ownership by women.

Our modelling suggests that increasing women’s access to mobile and scaling up the five other services highlighted in this Report, could have an annual economic impact by 2020 of \$28.9 billion across Vodafone’s markets. To put this in perspective, the estimated economic impact in 2020 is equivalent to between 0.4% and 1.2% of today’s GDP across Vodafone’s emerging markets and 0.18% of today’s GDP across all Vodafone’s markets.

This represents a significant commercial opportunity for mobile network operators of an estimated \$15.2 billion between 2013 and 2020, the majority of which comes from increasing overall access to mobile among women.

## Access to mobile

If growth rates of new subscribers among men and women remain the same, the gender gap in mobile ownership is set to grow further by 2020. To stabilise the gap at its current level, an estimated 154 million new women would need to become mobile phone owners across Vodafone’s emerging markets by 2020.

Increasing ownership at this scale, could result in:

- Improved quality of life for users: 90% of women feel safer and more independent and empowered if they own a mobile
- \$22.3 billion annual economic benefit to society by 2020
- \$14.6 billion cumulative revenue opportunity for mobile operators by 2020.

## Life-enhancing services

Collectively the services modelled in this report for education, health, safety, work and loneliness could reach 8.7 million women across Vodafone’s markets in 2020. By enabling women to overcome barriers to education, work and healthcare, increasing their safety and reducing ill health and isolation, these services could result in improvements to quality of life, and increased employment and income opportunities.

The overall potential economic impact of these five services is \$6.6 billion. Most of these economic benefits are derived from enabling more women to work and increase their income and productivity, in addition to savings in health and policing costs.

The estimated potential impacts identified for each service are detailed in the table, see right.

## Looking ahead

The greatest opportunities for positive social and economic impact are in emerging markets. Ownership of mobile is currently lower and the gender gap is higher, together with greater need for improvements in women’s health, education and economic opportunity. Our modelling indicates that, in addition to enabling greater mobile ownership by women, of the services included in this Report, improving literacy through mobile offers the most significant opportunity to deliver social benefit in emerging markets.

In mature markets, mobile services addressing safety and isolation issues have the potential to create significant benefits for more vulnerable women and to facilitate the work of emergency public services and NGOs.

Governments have a significant role to play in supporting increased mobile ownership and adoption of life-enhancing services. There are numerous examples of innovation on basic and feature phones, but for more sophisticated and effective services, low-cost, entry-level mobile broadband is required.

Education	Health	Safety	Work	Loneliness
<b>Programme:</b> Knowledge is Power	<b>Programme:</b> Text to Treatment	<b>Programme:</b> TecSOS	<b>Programme:</b> RUDIbens	<b>Programme:</b> SocialTV and Enred@te
<b>Potential reach:</b> 7.2 million illiterate women by 2020	<b>Potential reach:</b> 0.3 million women annually by 2020	<b>Potential reach:</b> 0.1 million women annually by 2020	<b>Potential reach:</b> 0.2 million women by 2020	<b>Potential reach:</b> 0.9 million women by 2020
<b>Quality of life impact:</b> 1.2% increase in the number of literate women	<b>Quality of life impact:</b> 1.8 million DALYs (Disability Adjusted Life Years) avoided between 2013 and 2020	<b>Quality of life impact:</b> 80,000 domestic violence incidents avoided between 2014 – 2020 due to faster police response times	<b>Quality of life impact:</b> Average reduction in travel time of two hours a day	<b>Quality of life impact:</b> over 0.6 million women report feeling happier and less isolated
<b>Economic impact:</b> \$3.4 billion annual benefit in 2020 due to a 17% increase in employment for users	<b>Economic impact:</b> \$200 million annual benefit in 2020 through more women being able to work and increase their income after childbirth	<b>Economic impact:</b> \$0.8 billion annual benefit in 2020 from women being able to work and reduced healthcare, policing, social care and legal costs	<b>Economic impact:</b> \$0.5 billion annual benefit in 2020 generated for women entrepreneurs based on a 200% average increase in income due to improved productivity	<b>Economic impact:</b> \$1.7 billion annual benefit in 2020 through reduced healthcare costs and informal carers being able to return to work
<b>Commercial impact:</b> Donor funding required. Potential cumulative revenue of \$3.6 million by 2020 by charging for download <sup>1</sup>	<b>Commercial impact:</b> Annual donor funding of approx. \$540 per patient required for infrastructure, treatment and travel costs <sup>1</sup>	<b>Commercial impact:</b> \$77 million cumulative revenue could be generated from police forces by 2020 for mobile operators <sup>1</sup>	<b>Commercial impact:</b> \$4.6 million cumulative revenue by 2020 for mobile operators <sup>1</sup>	<b>Commercial impact:</b> \$450 million cumulative revenue by 2020 <sup>1</sup>

Governments can encourage this by creating an open and competitive market environment, independent regulation and an efficient cost structure, for example through allowing more shared infrastructure and reducing luxury taxation on devices.

To improve women’s access to mobile and create the benefits our research shows are possible for women and society, mobile operators must look to:

- **Focus on women’s needs and preferences**  
Only by understanding their different needs as well as user preferences in each market, can operators provide the tailored services that will be valued by women customers.
- **Local implementation with relevant partnerships**  
Operators will need to work in partnership with NGOs, partners and funders to launch programmes at scale. Working with local partners will enable operators to leverage their expertise and networks to reach more women more effectively.

- **Explore new models and funding options**  
Different economic models would be required to deliver the different services at scale. An estimated \$900 million in donor funding would be required to achieve wide uptake of the modelled services in health, work and education in emerging markets. The mobile learning and Text to Treatment services are likely to require ongoing, large-scale donor or public sector funding. Nominal fees for services to recover development costs and public sector investments could contribute to these costs in some circumstances. Other services, such as those focused on work, safety and loneliness, have the potential to be self financing or revenue generating.
- **Use local infrastructure and existing technologies**  
Combining projects with existing services, for example the M-Pesa mobile money transfer system, or infrastructure, such as local healthcare networks, will significantly improve reach and effectiveness.

<sup>1</sup> Vodafone is managing these programmes on a non-profit basis, however our analysis indicates the potential impact of commercial models that may be used by operators.



## Appendix 1

# Authors, contributors and stakeholders

## About Vodafone Foundation

The Vodafone Foundation invests in the communities in which Vodafone operates and is at the centre of a network of global and local social investment programmes delivered by 28 local Vodafone Foundations.

The Foundation is dedicated to mobilising communities around the world to improve their lives. To achieve this objective the Foundation uses its charitable giving and its privileged access to Vodafone's networks, technology, customers and employees to empower people with the necessary tools to make a difference in the world.

The Vodafone Foundation is a registered charity in England and Wales (charity registration number 1089625).

## About Vodafone Group

Vodafone Group Plc is one of the world's largest mobile communications companies by revenue. We have a significant global reach through our activities, subsidiaries, joint ventures, associated undertakings and investments. We provide voice and data services to 419 million people worldwide, with 70% of our customers living in emerging markets.

Mobile technology is already a vital tool in many people's lives and our ambition is to increase access to Vodafone's mobile services to further improve people's livelihoods and quality of life and contribute to sustainable living.

## Vodafone authors

- ✦ Matthew Kirk, Group External Affairs Director
- ✦ Andrew Dunnett, Group Director Sustainability and Vodafone Foundation (Project Sponsor)
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## Vodafone key contributors

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- ✦ Lee Wells, Head of Health Programmes (Africa) – Vodafone Foundation

## About Professor Linda Scott and Saïd Business School

Professor Linda Scott is DP World Chair for Entrepreneurship and Innovation at Saïd Business School, University of Oxford. She is a leading thinker and author on the topic of women's empowerment.

Professor Linda Scott joined the Saïd Business School in 2006 from the University of Illinois where she held appointments in advertising, art, women's studies and communication. Linda is appointed to the U.S. Department of State's International Council on Women's Business Leadership (ICWBL) Subcommittee on Access to Markets and is the founder of the Oxford Forum for Women in the World Economy.

Saïd Business School at the University of Oxford blends the best of new and old. It is a vibrant and innovative business school, deeply embedded in an 800-year-old world-class university. It creates programmes and ideas that have global impact. It educates people for successful business careers, and as a community seeks to tackle world-scale problems. It delivers cutting-edge programmes and ground-breaking research that transform individuals, organisations, business practice and society. It seeks to be a world-class business school community, embedded in a world-class University, tackling world-scale problems.

## Oxford University Contributors

- ✦ Alexis Brown, D Phil candidate

## About Accenture Sustainability Services

Accenture Sustainability Services helps clients improve performance and value for their stakeholders. It helps clients leverage their assets and capabilities to drive innovation and profitable growth while striving for a positive economic, environmental and social impact.

Accenture's holistic approach encompasses strategy, design and execution to increase revenue, reduce cost, manage risk and enhance brand, reputation and intangible assets. Accenture also helps clients develop deep insights on sustainability issues based on our ongoing investments in research.

Find out more at [www.accenture.com/sustainability](http://www.accenture.com/sustainability)

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## Expert Stakeholder Panel

Vodafone would like to thank our expert panel of stakeholders who participated in interviews and supported the research and preparation of this report.

Louise Guido, CEO, ChangeCorp

Henriette Kolb, Head of Gender Secretariat, IFC

Lesley-Anne Long, Global Director, mPowering Frontline Health Workers

Sevi Simavi, CEO, Cherie Blair Foundation

In undertaking this research, interviews were conducted with a range of people including:

## Multilaterals /development organisations

Lindi Hlanze, Economic Advisor (Female Economic Empowerment), Department for International Development

Becky Ferguson, Program Officer, Family Health Division, Gates Foundation

Arlene Mitchell, Deputy Director, Agricultural Development, Gates Foundation

## NGOs and foundations

Antonella Notari Vischer, Executive Director, Womanity Foundation

John Liversidge, UK TecSOS Project Manager, Thames Valley Partnership

Anna Isabel Arroyo, TecSOS Foundation Project Manager, and Julian Andujar, TecSOS Foundation Manager, Red Cross

Kristen Woolf, Strategy Lead & Director of Girls Centre, Girl Hub (Nike)

Guilia Corinaldi, Interim CEO, Cherie Blair Foundation

## Industry bodies

Beth Gertz, Director of mWomen Programme, Mobile for Development, The GSM Association



Appendix 2

# Data assumptions and modelling

Data limitations

Given the type and origin of content, data was often limited in its availability and robustness.

Where possible, data points were sourced from internationally recognised bodies. In some instances, where data gaps were identified or specific country data was unavailable, then informed assumptions were taken to fill these gaps.

Data points used to calculate service adoption rates, economic and livelihood benefits were developed using benchmarks from identified case studies or interview data.

Data collection methodology

Key data points were collected from available sources and assumptions made to address data gaps and project key data points to 2020.

Category	Metric	Primary source	Limitations	Assumptions
Basic demographics	Population by age group	ILO KILM 7th edition	–	–
	Population by sex	ILO KILM 7th edition	–	–
	Rural population	World Bank, WDI, Geohives	Gaps in forecast data	Assumed a constant rate of future urbanisation using the historical rate
Employment metrics	Economically active population in employment	ILO KILM 7th edition	Gaps in historic time series	Employment ratio is fixed up to 2020
	Employment by sector	World Bank, WDI	Gaps in historic time series	Employment distribution across sectors/ industries is fixed up to 2020
	Wage and salaried workers	World Bank, WDI	Gaps in historic time series	Employment distribution across sectors/ industries is fixed up to 2020
	Informal employment	World Bank, WDI	Gaps in historic time series	Informal employment ratio is fixed up to 2020
Financial inclusion	Mobile money penetration	World Bank, Findex Database, 2011	Gaps in historic time series	Uptake based on the defined adoption rate used in Vodafone Connected Worker study for mPayroll
Wages/salaries	Average annual wages/GDP per capita	World Bank	Limited data available	GDP per capita used as a proxy to estimate average salaries and wages, normalised for outliers

Table continues on next page.

Technology	Mobile market penetration by unique subscribers	Wireless Intelligence	Wireless Intelligence provides forecast till 2017	Unique subscriber mobile penetration was used as proxy for proportion of population who have access to mobile, instead of connections penetration by population. Data till 2017 extrapolated till 2020. Data was rationalised with other GSMA studies for some key markets
	Male/female mobile market penetration	GSMA, Wireless Intelligence	Limited data available	No source is available which provides historical and forecast mobile penetration by subscribers for males and females. However, based on GSMA study on the mobile gender gap across different regions and the forecast total subscriber penetration rate, male and female market penetration across the years was derived. A higher penetration rate was assumed if considering only the adult female population
Maternal health	Maternal mortality ratio, skilled attendant at birth %	WHO, World Bank MDG	Not available for rural dispensation	Assumed the overall value for rural dispensation wherever not available
	Age-specific fertility rate, total fertility rate	WHO, World Bank	No recent data available	Key metrics assumed to be static across the periods
	DALY – maternal conditions	WHO, Global Burden of Disease	Limited data available	DALY per patient treated is not available for different maternal complications, hence, an average DALY was assumed for maternal conditions using WHO Global Burden of Disease study and DALY per capita for females for individual countries
Domestic violence/ loneliness	Prevalence rate	UN Women, Eurobarometer, OECD	Limited data availability, gaps in historic data	Used the latest available data as defined in UN Women compendium. Used an appropriate country proxy, if the prevalence rate is not available for a particular country

Modelling methodology

Education		
Base market	Metric	Adult illiterate females (15+)
	Assumption	<ul style="list-style-type: none"><li>Defined market only for women even though the solution may be equally adoptable by men</li><li>Only adults in programme scope</li></ul>
Service adoption	Metric	Number of service users
	Assumption	<ul style="list-style-type: none"><li>Adoption rate based on previous pilot and commercial projects</li><li>Application assumed to be compliant to at least feature phones</li></ul>

Table continues on next page.



User quality of life	<i>Metric</i>	Literacy and enrolment ratio
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Impact on child enrolment based on various studies – 80% increased likelihood for a child to be enrolled in school if its parents are literate</li> <li>• Number of children impacted based on average number of children per female and the probability of each child being of primary or secondary school age</li> </ul>
Economic benefit	<i>Metric</i>	Increased livelihood due to better economic opportunities post literacy
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Increase in employment based on pilot projects, research studies</li> </ul>

Health		
Base market	<i>Metric</i>	Adult females with pregnancy complications
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Pregnancy complications derived from national maternal mortality rate and ratio of complications to mortality (WHO)</li> <li>• Market limited to females living in rural areas</li> </ul>
Service adoption	<i>Metric</i>	Number of service users
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Growth rate based on current CCBRT Tanzania 'transport my patient' initiative</li> <li>• Impact of mobile money penetration has not been considered, which may impede uptake in some markets</li> </ul>
User quality of life	<i>Metric</i>	DALYs averted
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• An average DALY was assumed/calculated for maternal conditions (Refer to Data Collection Methodology – Maternal Health for more details)</li> </ul>
Economic benefit	<i>Metric</i>	Increased livelihood due to opportunity to rejoin the workforce
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Existing female labour participation rates as a proxy for the number of women who can rejoin the workforce following treatment</li> </ul>

Safety		
Base market	<i>Metric</i>	Adult women with a 'high-risk' of domestic violence
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• 'High risk' defined as women who are victims of domestic violence three or more times in a year</li> <li>• Prevalence rate based on various studies (UN Women)</li> </ul>
Service adoption	<i>Metric</i>	Number of service users
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Adoption rate based on pilot and commercial rollout across Vodafone's markets – uptake high due to ease and effectiveness of the application</li> </ul>
User quality of life	<i>Metric</i>	Reduced incidents/faster response time for police
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Assumed statistical activations as a proxy for timely police intervention</li> <li>• One year average period of use</li> </ul>
Economic benefit	<i>Metric</i>	Reduced economic burden of lost output, security expenditure, legal and social aid
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• A weighted average cost of violence was used and normalised on the basis of GDP for countries where the data is not available</li> </ul>

## Work

Base market	<i>Metric</i>	Rural women in unorganised retail trade
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Women in unorganised retail trade in rural areas</li> <li>• Excludes the top 20% income segment</li> </ul>
Service adoption	<i>Metric</i>	Number of service users
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Uptake restricted to mobile-phone-owning population</li> <li>• Adoption rate based on historical growth and defined targets in case study</li> </ul>
User quality of life	<i>Metric</i>	Reduced travel time
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Assumed the addressable users to be travelling to local depots, processing centres and customers for order intake and inventory checks</li> <li>• Walking is the main travel mode</li> </ul>
Economic benefit	<i>Metric</i>	Increased livelihood due to higher productivity and customer coverage
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Increase in livelihood based on RUDIbens study (2–3x)</li> <li>• Average wage based on GDP per capita rationalised for some countries</li> </ul>

## Loneliness

Base market	<i>Metric</i>	Women aged 65 and over reporting social isolation
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Only women included in scope, although solution may be equally relevant for men</li> <li>• Where country prevalence data is not available, case study pilot data is applied</li> </ul>
Service adoption	<i>Metric</i>	Number of service users
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Adoption rate similar to web social network adoption for older adults. A higher adoption rate is expected for this service due unique user needs</li> </ul>
User quality of life	<i>Metric</i>	Social connections/number of calls/ease of communication
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Average calls per user during the specified period based on pilot studies, with uplift as user numbers grow</li> <li>• User-reported benefit based on pilot study</li> </ul>
Economic benefit	<i>Metric</i>	Increased opportunities for informal carers to rejoin the workforce
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Informal carers in scope due to likelihood they leave their job or have diminishing economic opportunities as a result</li> </ul>

## Access

Base market	<i>Metric</i>	Adult women without access to mobile technology
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Excludes those borrowing or sharing mobile phones – borrowers do not benefit from the full range of capabilities ownership offers</li> </ul>
Service adoption	<i>Metric</i>	Number of women subscribers required to avoid gender gap growth
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Overall subscriber growth based on GSMA Wireless Intelligence forecasts</li> </ul>
User quality of life	<i>Metric</i>	Empowered users
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Percentage based on GSMA Report: Women &amp; Mobile</li> </ul>
Economic benefit	<i>Metric</i>	Increased livelihood due resulting from better access to professional opportunities
	<i>Assumption</i>	<ul style="list-style-type: none"> <li>• Income increase of 8% resulting from mobile ownership</li> </ul>



## Appendix 3

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