



# Connected Worker

How mobile technology can improve working life in emerging economies

by Vodafone Group Plc





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# Authors and contributors

## About Vodafone

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 403 million people worldwide, with 270 million of our customers living in emerging markets<sup>1</sup>.

Mobile networks have played a transformational role in emerging markets and there is a clear positive correlation between mobile density and economic growth. Vodafone has made a significant contribution to this process and we continue to be committed to developing new products and services that are not only good business but can also enhance people's lives and contribute to sustainable living. We focus on developing products and services in six key areas where we believe we can make the biggest difference – finance, agriculture, health, education, smart working and low carbon societies. Our objective is to find solutions in each of these areas that can be piloted, scaled up and rolled out across a number of markets, working with customers and other partners.

Vodafone's mobile solutions in finance, health and agriculture are already making a difference to quality of life for millions of people. In East Africa, more than 16 million people without access to bank accounts are now able to use financial services via our mobile money transfer service, M-Pesa. Vodafone's mHealth solutions are helping health centres maintain sufficient stocks of drugs and medical equipment, and mobile information services have already enabled Turkish farmers to improve productivity by an estimated €100 million. Together these pioneering services have improved the lives of millions of people in markets that are characterised by large populations, fast economic growth and rapid industrialisation.

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## About Accenture Sustainability Services

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Our holistic approach encompasses strategy, design and execution to increase revenue, reduce cost, manage risk and enhance brand, reputation and intangible assets. We also help clients develop deep insights on sustainability issues based on our ongoing investments in research, including recent studies on consumer expectations and global executive opinion on corporate sustainability and climate change. Find out more at [www.accenture.com/sustainability](http://www.accenture.com/sustainability).

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# Foreword

from Vittorio Colao, Chief Executive, Vodafone Group Plc

Mobile technology has already fundamentally changed the way we communicate. Today, irrespective of income, location or circumstance we can all be connected and increasingly, the majority of our transactions are taking place via our mobile phones.

The mobile infrastructure in most emerging markets is now well established. As such, operators and their partners are all looking to develop business strategies that deliver shareholder value and offer tangible social benefits for the communities in which they operate. At Vodafone, everything we do in emerging markets is driven by two overriding aims: to empower people who want to better themselves and their families and to create profitable new income streams for our business through the rollout and adoption of our technology.

📍📍 Everything we do in emerging markets is driven by two overriding aims: to empower people who want to better themselves and to create profitable new income streams... 📍📍

We have already explored how mobile technology can have a positive impact on specific areas such as the delivery of healthcare and agricultural services in other reports<sup>2</sup>. In this new Connected Worker study, we look at ways in which we can make a significant difference to both workers and the organisations that employ them. We consider how we can make it easier to find work using, for example, recruitment services via a basic mobile device, and we identify how organisations can reduce costs and become more efficient, for example, by using mobile money transfer services to make salary payments directly to workers. We demonstrate how overall productivity and worker wellbeing can be improved by adapting fieldforce services to the specific needs of an emerging economy. All these services have the potential to deliver increased value for the worker, their organisations and for Vodafone.

We believe this report is just the beginning. It highlights how the experts we talked to are seeing how the future of work in emerging markets will develop. By outlining the opportunities for further innovation and describing how mobile technology could facilitate this, our aim is to inspire others to work with us to increase the efficiency of their business processes. This will enable growth of pivotal services and improve the overall effectiveness of the connected worker. At the same time, we anticipate that many of the changes we outline will help improve the working conditions of those who need it most.



These are exciting times for mobile. Together, the increasingly evident convergence of devices and the spread of access to networks provide a host of new platform opportunities. We are keen to share our technology with partners to unleash the power of mobile to help solve the challenges facing workers and employers in emerging markets. We hope that this contribution will help stimulate further ideas to build a better, more productive workplace for all.

A handwritten signature in black ink, appearing to read 'Vittorio Colao'. The signature is fluid and cursive, written on a white background.

**Vittorio Colao, Chief Executive, Vodafone Group Plc**

# Executive summary

## Mobile communications can significantly improve working life and deliver commercial benefits to organisations in emerging economies

Our research shows that by 2020 new mobile services could create potential annual livelihood benefits to workers of US\$7.7 billion, while enabling a further US\$30.6 billion in benefits to organisations through improved productivity. It is estimated that around 174 million new service connections are needed to realise these benefits.

The potential benefits for workers from the Connected Worker solutions outlined in this report include: connection to new job opportunities; improved working conditions; provision of timely, relevant training services; and secure delivery of wages using mobile money transfer solutions. For organisations, enhanced communications will enable increased efficiency through improved skills, management information and tracking of worker activity. Mobile can also support organisations to build better relationships with their workers. This, in turn, will increase productivity and ultimately make a material difference to economic growth.

This report explores six ideas that, if developed, can help to realise these potential benefits. Its purpose is to act as a catalyst to stimulate engagement between mobile operators, governments, NGOs and businesses, and the development of new solutions in order to transform opportunity into innovation.

### Challenge and opportunity

The 12 markets identified in this report are undergoing significant economic and social change. In general, they have fast-growing populations and are expected to see rapid economic growth over the next decade. Increasing urbanisation and a gradual shift away from the agricultural sector is changing how people work, with many workers looking to the manufacturing and service industries for future employment. This means that the workers of tomorrow need to learn new skills and face new challenges in order to benefit from a share of future economic wealth.

For workers, a key challenge is to find secure and sustainable employment in the new economy. This means that many, who previously would have worked in the agricultural sector, must leave their homes and move to the city where there are greater job opportunities. Lack of a formal identity and limited literacy or numeracy skills can make the search difficult, particularly for those at the 'bottom of the pyramid', so migrant workers are often obliged to take seasonal roles or join the informal marketplace, where they are vulnerable to poor pay and working conditions. In addition, many workers do not have a bank account and are therefore dependent on a cash economy, with limited ability to save or manage irregular cash flows.

Many organisations face parallel challenges. It is difficult for them to find and recruit workers with appropriate skills, including basic literacy and numeracy but also more advanced management skills and the technical know-how to perform effectively. Once found and recruited, organisations face an additional challenge of how best to retain and motivate their workforce. Managers need to establish and build trust and skills, often a difficult process where workers are frequently transient, work informally and may have little direct contact with their employer. Monitoring productivity and managing a large workforce can be especially challenging where logistics are poor, or for those organisations with remote workers.

While workers and employers face many challenges in emerging markets, these economies also demonstrate strong growth potential and real innovation. An emerging middle class with increasing spending power holds growing economic influence. Across the markets we examined, start-up businesses, as well as more mature organisations, are experimenting with technology to solve challenging problems. Especially in India, but also in many parts of Africa, companies from sectors including healthcare, education, banking and transport, are redefining business processes and driving product development to create new products and services that deliver better experiences than existing alternatives, at considerably lower cost. Entrepreneurs are already capitalising on increasing mobile penetration, established mobile money networks and social media to access new markets and create new business models.

This report sets out to build on this exciting innovation and demonstrate how mobile technology can help to improve lives in emerging markets by looking at six opportunities to create shared value for workers and organisations.

## The six opportunities



### 1 Job Finder

Job Finder offers a subscription-based service to match workers to jobs. It has the potential to reach approximately 49 million workers and could match 12 million workers to jobs annually by 2020, improving livelihoods by over US\$5.6 billion. Because it operates on basic handsets, the service has the advantage of reaching a wide section of the workforce, particularly those who are unskilled.

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### 2 Fieldforce enablement

Fieldforce enablement services provide remote access to corporate systems and facilitate better scheduling. These improve productivity by reducing the need to travel and allowing remote access to customer information and job records. Management can better monitor and track performance. These services could reach over 30 million users, delivering organisational benefits of US\$24.9 billion annually.

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### 3 mIdentity

mIdentity solutions use mobile technology to manage worker identity to enable more secure transactions and identity verification. Initially, this service may be deployed by organisations, but it could extend to provide improved authentication of individual tradesmen or contractors to end customers. It is estimated that these solutions could reach 16 million people and offer organisational benefits of US\$1.5 billion annually by 2020.

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### 4 mLearning

mLearning could deliver basic skills training in literacy and numeracy as well as job-related training, via a mobile device. The training content could be tailored to provide specific, timely, industry-relevant information for workers. mLearning has the potential to reach 12 million workers and benefit organisations by an estimated US\$1.4 billion annually, through the improved productivity and skills of their workers.

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### 5 Worker Panel

Worker Panel services could enable large organisations to better understand real-time working conditions experienced by workers in their supply chain. By aggregating data from large numbers of workers, it provides an overview of conditions from the workers' perspective. Worker Panel has the potential to reach 18 million users and provide an estimated livelihood benefit of US\$2.1 billion annually, through improved pay and conditions.

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### 6 mPayroll

mPayroll would enable secure, cost-effective wage payments to be made to unbanked workers using existing mobile money networks. This service could make wage payments more reliable and reduce the costs associated with the distribution of a cash payroll. By 2020, mPayroll could be used by 48 million workers and extend financial inclusion to an additional 4% of adults as well as offering business savings of over US\$2.8 billion annually.

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# Scope and methodology

This study examines the potential for mobile services to help improve worker wellbeing and enable organisations to become more efficient

Taking a mid-term view, this report explores formal, informal and self-employed working and looks at ways for mobile to deliver productivity gains for organisations, while simultaneously improving worker livelihoods. The aims of the study were to:

- Identify the key issues facing workers and employers in emerging markets
- Identify the potential for mobile to contribute to addressing these challenges
- Identify a range of opportunities that could deliver benefit for both workers and organisations
- Prioritise six opportunities that have the greatest potential to deliver benefits for workers and organisations
- Analyse the market size for the selected opportunities and estimate the potential benefits to workers and organisations
- Provide examples that start to demonstrate how mobile technology can be used practically to improve worker wellbeing and workforce management

## Methodology

The research first looked to understand the overall demographics of the target markets including the size of the workforce, key employment sectors and the penetration of mobile technology. Through a process of desk research and stakeholder consultation, it went on to identify the key issues workers and employers face and the best opportunities for mobile technology to address these challenges. This included a review of the landscape of emerging technology start-ups and mobile-based businesses in our target markets. Initial perspectives were expanded on and challenged by experts during workshops that were held in India and in South Africa. These were attended by over 30 external stakeholders who came from the private, public and not-for-profit sectors. In addition, in-depth interviews were also conducted with over 40 stakeholders who were all experts in different elements of business and the workplace environment (see Appendix 1 on page 28).

Over 90 concepts were initially considered. These were prioritised against a high-level assessment of the potential worker benefits (e.g. access to work, improved financial security, work quality benefits, etc.) and organisational and market potential, to produce a shortlist of six.

Each of the six opportunities were modelled across 12 emerging markets in which Vodafone has a presence: DRC, Egypt, Fiji, Ghana, India, Kenya, Lesotho, Mozambique, Qatar, South Africa, Tanzania and Turkey. Our modelling considered workforce demographics, mobile penetration and market demand to assess potential service uptake to 2020 on a country-by-country basis. In addition, we assessed the potential benefits of these new services to workers and organisations. Our analysis factored in the anticipated increased access to mobile phones by 2020 and the impact that smartphone usage might have on different services.

Detailed information on the assumptions underlying the analysis is available in Appendix 2 on page 30.

## Our 12 markets



# Context and background

These markets are characterised by a growing workforce, economy and a shift away from agriculture

Although geographically disparate and at different stages of development, these 12 countries share a number of commonalities:

- Rapidly growing and typically urbanising workforce
- Forecast ongoing economic growth
- A shift away from agriculture to service sector and manufacturing-based economies

## Large and growing urban workforce

The majority of the emerging markets studied have a large and growing population and an urban workforce. Indeed, the combined population of the countries discussed in this report is expected to rise to 1.9 billion by 2020, with an estimated 0.76 billion being economically active. The indications are that, by 2020, the overall working population will increase by approximately 20%<sup>3</sup>.

### Economically active population



Data extracts copyright © International Labour Organization 2012

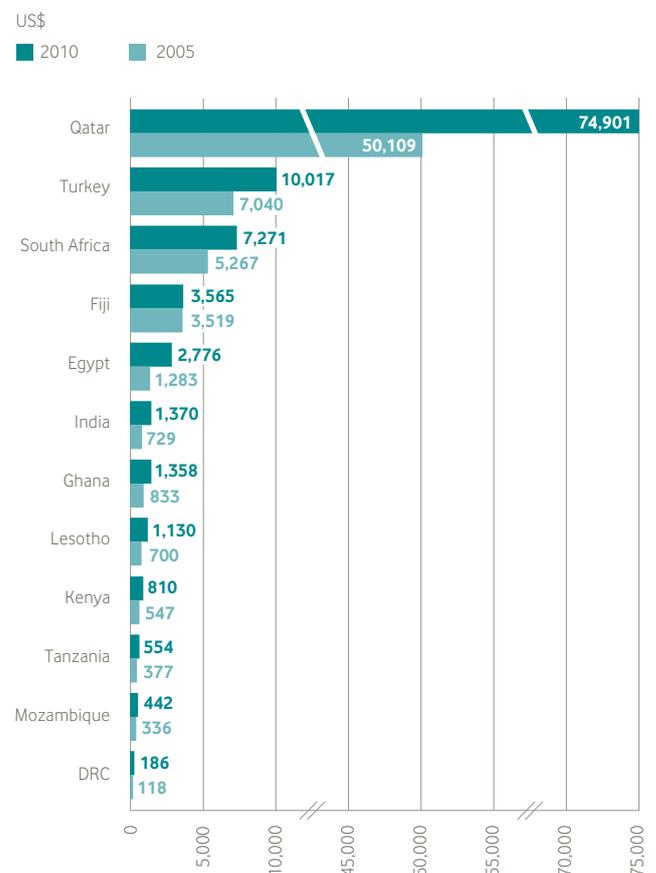
The largest population change will be found in sub-Saharan Africa, which is currently growing at 2.7% annually. The population there is also very young: 42% of Kenya's 41 million and 46% of the DRC's 71 million people are currently under 14. India also has a young workforce: 50% of its 1.2 billion people are currently aged under 25. The country's working population is therefore expanding rapidly; about 110 million workers will be added to its labour force over the next two decades. Turkey is experiencing similar dynamic growth – its population of nearly 80 million has a median age of 26<sup>4</sup>.

The continued transition from a self-employed agricultural society to a service and manufacturing-based urban economy has highlighted the need to manage large workforces more efficiently, as well as to develop a literate and suitably skilled workforce. Extensive competition is also increasing the cost pressures facing established players in many industries, thanks to new low-cost entrants.

## Rapid economic growth

Despite the global financial crisis, the 12 markets covered by this report show a positive medium-term economic outlook, driven in part by population growth and increasing domestic consumption. This is set to continue, with current IMF forecasts suggesting that over the period to 2017, GDP growth will average at 8% across the target markets. In India, for example, GDP has grown by 13% and in DRC and Ghana by 10% over the last five years. Overall, total GDP across our selected markets was US\$3 trillion in 2010, and this is forecast to reach US\$5.7 trillion by 2017<sup>5</sup>.

### GDP per capita 2005 and 2010



Source: World Bank

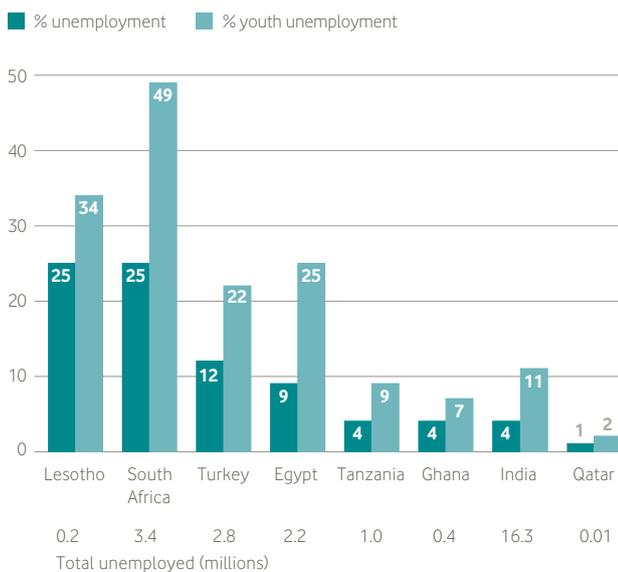
# Context and background

General GDP growth, however, hides a more complex picture. A recent report from the African Economic Outlook (AEO) states that despite a projected growth rate of 4.8% in 2013<sup>6</sup>, employment prospects across Africa are poor. This is due to economic growth not being sufficient to meet the employment needs of a rapidly expanding population.

World Bank data shows that over the last 20 years labour participation rates (the proportion of the population aged 15 and older that is economically active) have remained largely unchanged in all the African countries studied in the report. This is particularly concerning for the younger population, for whom unemployment is a worrying phenomenon. In South Africa, the unemployment rate for younger people has been running as high as 50%, and in Kenya it is 70%<sup>7</sup>.

## Youth unemployment

% unemployment and % youth unemployment 2010 (estimated)\*  
(% of total economically active population)



\*World Bank Development Indicators (WDI) data available for latest period has been carried forward for Egypt, Ghana, Lesotho, Qatar, South Africa, Tanzania. Youth defined as 15–24.

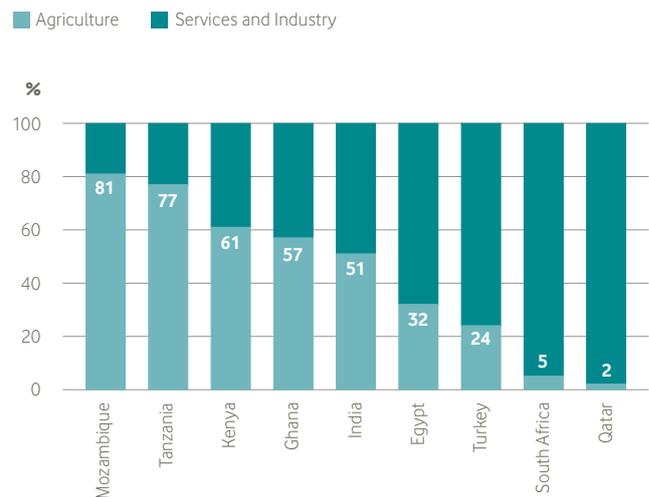
Source: estimates based on WDI data

## Shift away from agriculture

The countries studied are at very different stages in the transition from a self-employed, agricultural society to a service and manufacturing-based urban economy.

## Employment by sector

2010 estimates\* (% of total)



\*DRC and Lesotho are assumed to be the same as Tanzania. WDI data available for the latest period has been carried forward for Egypt, Ghana, Kenya, Mozambique, Qatar, South Africa and Tanzania.

Source: Estimates based on WDI data

Although in 2010 the percentage of people working in agriculture was 81% in Mozambique, 77% in Tanzania and 61% in Kenya, generally speaking the sector, as a source of employment, is in decline. The more advanced economies such as Turkey, South Africa and Qatar have largely shifted towards a service and manufacturing-based economy, with a corresponding increase in employment opportunities. The Indian National Budget statement 2012 points to a similar shift, reporting that the service sector now contributes 55% of GDP and about a quarter of total employment in the country<sup>8</sup>.



# Mobile technology in emerging markets

Mobile technology is uniquely positioned to continue to drive economic, environmental and social change

“The mobile phone is the single most transformative tool for development,” according to Jeffrey Sachs, Director of the Earth Institute, Columbia University. As one of the most rapidly adopted technologies in history, mobiles are increasingly ubiquitous in today’s world. Relatively inexpensive and easy to use, mobiles do not have the same barriers to access as other technologies, such as broadband internet, which needs a fixed line infrastructure.

There are now nearly five billion mobile connections in the emerging world and this is increasing by 18 per second<sup>9</sup>. This ubiquity, combined with increasing access to mobile data services, means that mobile technology is well placed to facilitate a range of additional activities, from the provision of mobile money services, to more efficient supply chain management and increased access to data services for recruitment.

Mobile penetration rates in most of the markets researched have been escalating rapidly over recent years. In South Africa and Qatar, there are now well over 120 mobile subscriptions per 100 people and in Turkey subscriptions have doubled in the past seven years. In India, Kenya and Tanzania subscriptions have doubled to around 60% of the population in just three years. Even those with no formal identity, no address or bank account and with limited literacy levels, are able to use mobiles and can participate in the mainstream economy more effectively thanks to the advent of mobile technology.

## Use of mobile

It is easy to assume that the way individuals use mobile technology is broadly universal. However, research<sup>10</sup> shows that this is not the case. Mobiles in emerging economies are used, valued and owned in different ways from developed countries. Most striking is the way in which they are informally shared between people. The formation of private resellers of mobile services and the provision of mobile phones for public use all increase accessibility, even in rural communities. Looking ahead, increasing use of smartphones and data-driven devices is anticipated as cost of ownership falls. Irrespective of the method of access, it is clear that the impact of mobile extends well beyond what might be suggested by the number of subscriptions alone.

## Mobile internet

Mobile technology is not the only innovation to change societies. The internet is another transformational technology to emerge from the twentieth century. As these two platforms combine, they bring with them greater opportunities, as the provision of information has become accessible to almost everyone. Their combined use has been readily adopted across all markets. By 2012, nearly 99% of internet subscriptions in Kenya<sup>11</sup> were via a mobile device; India shows a similar trajectory with the number of mobile internet users expected to nearly double to reach 165 million by March 2015, according to the Internet and Mobile Association of India (IAMAI)<sup>12</sup>.

## Mobile and money

Many people are now replacing cash as the means of exchange, for a safer store of value – mobile phone minutes. In places such as Kenya and Egypt, airtime has become an alternative currency by which people trade goods and labour. This has become popular because airtime is easy to share and exchange, is understood by all, has clear value and can be linked to the national currency. Importantly for the informal sector, it is also seen as being outside the formal financial system.

In addition to this, such has been the success of mobile money transfer products such as Vodafone’s M-Pesa that, looking forward to 2020, it is possible to see a world where cash transactions are replaced by digital ones and where most of these can be made via a mobile device. Indeed, a recent *Economist* article stated that in Kenya M-Pesa has now been adopted by 70% of the adult population and is a conduit for 25% of Kenya’s GNP<sup>13</sup>.

# Key employment challenges

Through research and stakeholder engagement we identified significant shared challenges for both workers and organisations

## Key worker and employer challenges

### Worker challenges

#### Access to work

- High **youth unemployment** with relatively low levels of **female participation**
- Lack of **key technical and managerial skills** for employment
- Significant internal **migration** and immigration to find work
- Large populations with no **formal identity**
- High levels of **temporary and ad-hoc work**
- Poor levels of **literacy**

#### Work quality

- **Low average incomes**/high proportion living on under US\$2/day
- Large **informal** labour force, and significant '**invisible**' labour force with no rights – e.g. domestic workers
- High levels of **corruption**
- Significant workplace **health, safety and security** challenges
- **Productivity** and **operational efficiency** challenges
- **Lack of engagement** (and, as a consequence, trust) between workers/employers

#### Financial security

- Low levels of **financial inclusion**
- Many employees **not formally 'waged'** and few **receive wages into a bank account**
- High **cash handling costs** and security concerns for paying workers
- **Lack of transparency** on pay (e.g. on deductions) and lack of financial literacy
- High **seasonal variation** in incomes

### Employer challenges

#### Recruitment and skills

#### Workforce productivity

#### Secure payment

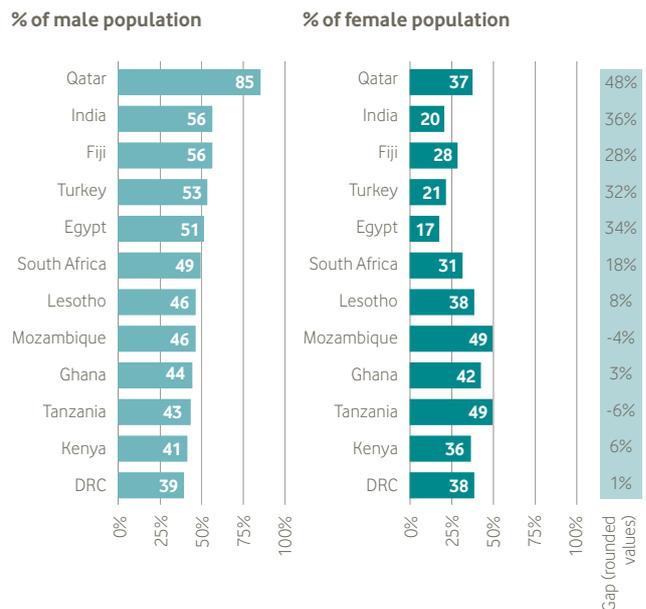
We identified three sets of related challenges for both workers and the organisations that might employ them. Access to work is a significant issue for workers and recruiting people with the correct skills is the parallel issue for organisations. Finding a formal job with acceptable pay and working conditions is a real challenge for workers across emerging markets, with employers struggling to manage a productive workforce. Lack of financial security and transparency of wages remains a challenge for workers alongside the cost and security issue of secure payments.

Women find it particularly difficult to find secure work: employment rates are generally low, with only 24% economically active across all markets<sup>14</sup>.

## Access to work/recruitment and skills

Growing populations mean that there are an increasing number of people who need to find paid work. This has resulted in many who would previously have earned a living as self-employed agricultural workers, moving to the cities to find work. This will often require them to learn a different set of skills, in a new and frequently alien environment, where they may well struggle with a lack of local information regarding key issues, including how and where to find a job.

## Economically active population 2012



Source: ILO Laborsta



The greatest gender disparity, likely due to cultural and religious factors, can be found in the Middle East and India. Furthermore, women are often obliged to take seasonal or low-skilled jobs, particularly in the domestic labour force, which makes them particularly vulnerable to poor working conditions and labour standards. This misalignment between employment need and workers' skills is evident across all the markets we studied and has led to a number of issues and challenges being identified.

### Worker issue: Access to work

One of the main issues facing workers is the ability to access work. The key challenges are:

- **To find information about job availability.** This particularly affects migrant workers who do not have an established social network to fall back on
- **To find stable employment.** Limited employment opportunities mean that many workers are often obliged to take seasonal or temporary roles. In South Africa this constitutes 7% of the workforce; in India it is as high as 18%<sup>15</sup>
- **To acquire the skills necessary for jobs in a changing employment market.** Workers cannot find work if they do not have the necessary skills to enable them to do this. In particular, low levels of literacy make finding employment difficult. In Mozambique literacy levels are 55%, in DRC and Ghana they are 67% and in India 72% of the population are literate<sup>16</sup>
- **To be officially recognised.** Many workers lack a formal proof of identity, which can restrict their ability to find formal employment

### Employer issue: Recruitment and skills

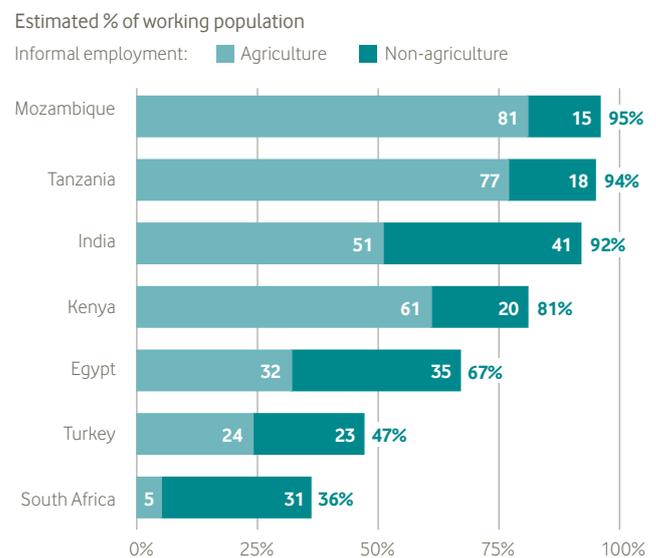
One of the main issues facing employers is recruitment and skills. The key challenge is:

- **To find and recruit sufficient skilled workers to fill the roles available.** In addition to a significant shortage of workers with basic literacy skills, 34% of employers globally report deficits in key technical and managerial skills. Often, even those who are educated do not have the necessary skills required to get the jobs on offer. The manufacturing sector is growing in India but despite producing over 400,000 graduate engineers a year, 48%<sup>17</sup> of employers in India still report difficulty in finding appropriate candidates.

## Work quality/workforce productivity

Stakeholders reported a wide range of challenges for workers around the nature and conditions of their work. These issues are especially acute for the informal workforce, which covers a diverse range of occupations from street sellers and domestic cleaners, to garment workers and labourers, and makes up a significant and growing proportion of the working population across all markets. In 2010, it comprised 36% of South African workers, 47% in Turkey, 81% in Kenya and 92% in India. Many people are forced to work this way because they are unable to find other work<sup>18</sup>.

### Employed informal sector 2010



As employment laws do not protect them, informal workers are vulnerable to exploitation and, as well as poor labour conditions and corruption, they often receive low pay. Over 30% of workers in Africa earn below the legal minimum wage. In South Africa, for example, the median monthly earnings for employees in the informal sector in 2010 was 43% of the average monthly earnings of formal sector employees. In 2005, the World Bank Wage Disparity Survey found that in South Africa, the top 90% of earners had an income 14 times greater than that of the bottom 10%. In Kenya, Tanzania and India, the disparity between top and bottom earners was between 11 and 13 times greater<sup>19</sup>.

In many of the countries studied, the informal marketplace provides a large proportion of all work and both workers and employers face a significant number of challenges and issues:

# Key employment challenges

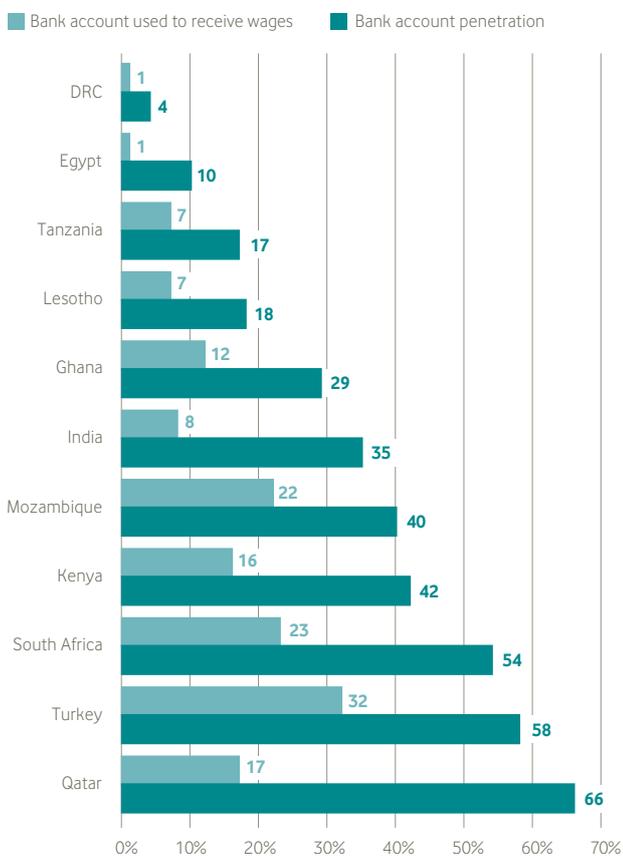
## Worker issue: Work quality

One of the main issues facing workers is the quality of work available. The key challenges are:

- **To achieve decent working conditions**, including reasonable working hours, with no child or forced labour and to work in a safe and secure environment without exploitation. There is ongoing evidence of poor labour conditions; Impactt's<sup>20</sup> exploitation index for Asia (based on sites visited) shows that:
  - 59% of sites show evidence of forced labour
  - Workers are forced to work over 60 hours per week in 89% of sites
  - There is little or no age verification process in 60% of sites
- **To earn enough money to meet basic needs such as food and shelter.** A high proportion of workers survive on under US\$2 per day. Over 30% of those living in Africa currently earn below the minimum wage. In South Africa, the median monthly earnings for the informal sector in 2010 were 43% of the average formal sector earnings<sup>21</sup>

## Financial inclusion

(% adult population)



Source: Global Findex World Bank Database 2011

## Employer issue: Worker productivity

One of the main issues facing organisations is workforces' productivity. The key challenges are:

- **To improve productivity.** Organisations need to increase the productivity of their workers, particularly in relation to low-skilled, poorly paid workforces, with high turnover rates. Productivity can also be challenging to manage with more disparate workforces, particularly in areas where there is limited infrastructure
- **To build trust and improve workforce relations.** High levels of income disparity, low rates of pay for many workers and communications challenges impact workforce relations. For some employers, limited literacy skills and the need to communicate in multiple languages can compound this challenge
- **To meet growing requirements for decent labour conditions.** Suppliers in emerging markets are increasingly facing downstream supply chain pressure from multi-national buyers who themselves are facing greater global scrutiny from customers, NGOs and the media, on labour conditions, particularly in the textiles, food and electronics sectors
- **To improve the safety of workers.** Large employers seek to enhance the general health and safety of their workforce (e.g. in extractives, utilities, construction and security industries) and maintain health and safety knowledge despite high turnover

## Financial security/secure payments

With the exception of South Africa, Turkey and Qatar, the markets studied in this report have large unbanked populations with only a small percentage of adults receiving wages directly into their bank account. Unlike in developed markets, owning a bank account is not considered a necessity; this is partly because there are few retail branches outside the main cities, which means they are not easily accessible, so formal banking is used by only 37%<sup>22</sup> of the population.

A lack of financial services can potentially restrict workers' ability to plan and save for future periods without work, or to plan for seasonal variations in income. In addition, a lack of financial services can restrict the self-employed from the ability to secure funds to improve their equipment or grow their business.

By contrast, almost everyone has access to a mobile phone. It is estimated that for every 10,000 people, African countries have one bank branch and one ATM – but 5,100 mobile phones. This means that most of the transactions between employer and worker are cash based<sup>23</sup>, which raises the following challenges:



## Worker issue: Financial security

One of the main issues facing workers is financial security. The key challenges are:

- **To be able to access financial services.** Most people who are outside the banking system lack access to other financial services such as savings accounts. Furthermore, without a bank account it is difficult to build any sort of credit history, therefore making it challenging to access other services such as insurance and loans, or to move funds to relatives or to pay bills. The lack of a formal identity contributes to the reason why people do not have a bank account, alongside the under-developed banking network
- **To reduce security risks from cash handling.** The dependency on cash is a security risk for workers without bank accounts. Storage and transportation is particularly an issue for migrant workers, many of whom need to send cash home to support their families. It can also be expensive for workers who have to make time to collect and transport cash to their families

## Employer issue: Secure payments

One of the main issues facing organisations is being able to make secure payments. The key challenges are:

- **To improve traceability of cash transactions.** Cash transactions are difficult to track and generate significant security and corruption risks for workers and employers
- **To reduce the cost of insuring, transporting and handling cash.** Cash is expensive to handle and the necessary insurance for transportation, security and distribution adds significant costs to cash handling

## Responding to the challenges

Our research shows that these are fast-paced markets with many innovative companies building new solutions and driving rapid adoption. During this research, Vodafone and Accenture have identified over 90 ways in which we believe mobile technology can make a material difference to working life, both now and in the future. We have prioritised the opportunities to produce a shortlist of six that we have explored in more detail in this report.

The six opportunities outlined on the following pages are not fully developed solutions, rather they are intended to inspire thinking and encourage new streams of work and partnerships to flourish. In some cases, such as that of mobile payroll, Job Finder and some Fieldforce enablement services, we are able to share examples of how use of mobile technology is already beginning to help improve access to work, working conditions and the ability to make secure, cost-effective wage payments to unbanked workers. Other areas, such as that of mobile identity, are in their infancy and we recognise that although the concept shows potential, it needs further research in order to build a viable business case. Details of our methodology and assumptions can be found in Appendix 2 on page 30.

Vodafone does not intend to explore these opportunities alone, rather our aim is to demonstrate that it is possible to link social progress with business success. We wish to encourage others to think in the same way, thus inspiring new business propositions with mobile technology as a core part of the process, offering the potential to improve lives and livelihoods as well as to enhance the ability for organisations to manage a productive and skilled workforce more effectively and efficiently.

# 1 Job Finder

Job Finder is a subscription-based service designed to link workers to jobs using an SMS-based platform



Job Finder is designed to work on all basic mobile devices and would mainly be aimed at the informal sector and seasonal workers. It would be designed to be as accessible as possible so that it can accommodate workers with low levels of literacy. Registration would be straight forward; applicants add their name and their profession (e.g. a carpenter, painter, farm labourer or factory worker), state their salary expectations, location and availability. At the same time, employers could advertise job requirements stating the length of contract they are offering, the location and other details. The Job Finder service then compares the job and worker profiles and sends SMS alerts to workers when a suitable job opportunity arises.

## Benefits

### Job Finder has the potential:

#### For workers

- To identify entry-level jobs in growing economies
- To enable more skilled workers to identify roles specifically relevant to their experience
- To reduce the need for workers to travel in search of employment
- To reduce the time spent seeking work and shorten periods without work
- To increase transparency around work availability and wages

#### For employers

- To help find the right people with the right skills at the right time
- To more easily reach the informal and seasonal market
- To reduce the costs of recruitment through screening potential workers via mobile

### Our modelling indicates that Job Finder could:

- Attract 49 million users, creating successful connections to 12 million jobs in 2020
- Provide an annual livelihood benefit of US\$5.6 billion, based on an estimate that 25% of job matches will be successful

Although existing recruitment companies and websites have an extensive web and smartphone presence, their services have typically bypassed basic mobile device technology and opportunities for low-paid and informal sector workers in emerging markets. This has meant that these workers have little access to information about possible job opportunities, relying mainly on word of mouth or local print advertisements. Employers are equally challenged when needing to locate a significant number of low-skilled workers, for example at harvest time. Job Finder has the potential to solve the problem for both workers and employers by connecting demand with supply.

Job Finder also helps to better identify people with specific skills for more technical roles. It could further provide an initial screening process by using text correspondence to ascertain more detailed information. For example, candidates could be asked to confirm they have had relevant training certificates, give details around length of experience or evidence of a specific skill.

👉👉 Attracting potential employees is not an issue, but gaining access to niche expertise or finding candidates who meet our skillset requirements can be a challenge. A simple screening process to find the best people would save time and money. 🙌🙌

Erin Ferguson Ormond, Talent and Recruitment Africa, G4S

Job Finder has the potential to use the aggregated data to help workers gain a better understanding of the skills they need to find employment, providing them with tailored information around training and qualifications needed by today's employers.

### Looking ahead

The success of Job Finder will be primarily dependent on the ability to rapidly build a critical mass of users and on the clarity of the user interface. In addition to limited literacy skills in some markets, the challenge of communicating across multiple dialects and languages also has to be addressed, so it is important that functionality should be both simple and intuitive to use, as well as work across an SMS-based platform.

In order to build scale, the service needs a regular number of jobs being posted and job seekers registering to look for employment. Effective marketing is therefore very important and the launch and subsequent rollout is likely to require partnerships with existing community-based organisations to raise awareness and encourage subscriptions. Promotional activities such as free registration at launch may also help to encourage widespread use of the system.

Once a Job Finder network has been established there are a number of additional opportunities that could be explored. As smartphone penetration increases, further certification processes could be included such as tracking qualifications, providing links to government registries (such as driving licences) and providing additional candidate screening for employers. The solution could also be expanded to become a marketplace for services where, for example, tradesmen such as plumbers and carpenters could advertise their services.

Given that seasonal and temporary workers are particularly dependent on building their networks and contacts to ensure future employment, additional support could be created by establishing discussion boards and, dependent on the uptake of smartphones, social media sites where news and information about employers, wages and opportunities can be shared. This could give workers and employers the chance to rate each other in an eBay-style system, which could increase transparency and understanding about working practices and conditions. In order to boost take-up of this kind of functionality, it could be linked to existing social media applications, such as Mxit in South Africa.

### The concept in action



One innovative example of this concept in action can be found operating in the Palestinian territories. Souktel designs and delivers a mobile phone service that links people with jobs and connects aid agencies with communities who need help.

Through a simple, easy-to-use SMS format, the service connects thousands of job seekers with employers who are looking for staff. By giving users real-time information on their mobiles, Souktel enables access to jobs, helping break cycles of poverty and unemployment. During the pilot, 25% of users found roles, with the average job search reduced from 12 weeks to one week. Employers reported a 50% reduction in hiring time and 64% of workers reported an increase in salary.

By 2020, Job Finder could...

... reach  
**49m**  
service users

... deliver employment to  
**12m**  
workers

... improve livelihoods by over  
**US\$5.6bn**

## 2 Fieldforce enablement

Fieldforce enablement technology enhances the productivity, safety and effectiveness of workers



Fieldforce enablement solutions are generally used by organisations with large, disparate workforces, such as those found in the utilities, healthcare, security or logistics sectors, enabling their employees to plan and execute a wide range of tasks while they are in the 'field'. Some applications may also provide benefits to workers and organisations operating on large sites, such as mining operations.

Fieldforce applications include providing work-scheduling and task notification; improving coordination with colleagues; providing access to business systems; enabling remote data capture and customer transaction logging; and providing route planning or location-based information. Importantly, workers are enabled to complete complex tasks by following a dynamic workflow that changes dependent on user input.

Employers can use Fieldforce solutions to monitor individual attendance and performance (via check-in and check-out and location tracking functions) and to check task completion. Workers in vulnerable situations can also be monitored to improve their safety and security. This is particularly relevant for security guards, lone workers in the utilities industry and community healthcare workers.

### Benefits

#### Fieldforce enablement services have the potential:

##### For workers

- To empower and build trust with workers in remote situations by providing them with access to relevant and timely information
- To help remote workers better manage their time, reduce travel and enhance flexibility in terms of location and working hours
- To improve health and safety outcomes by providing relevant information and extending processes to field-based employees
- To improve safety of lone workers through location monitoring and emergency response
- To enable workers to access help and advice while they are on the move

##### For employers

- To improve workforce productivity by more effectively managing the tasks and schedules of a large distributed workforce (e.g. in the health, security, logistics or utilities sectors)
- To improve the effectiveness of field-based employees through provision of accurate, relevant and timely information (e.g. access to individuals' records for health and community workers)
- To improve customer interactions by enhancing access to customer records and enabling transactions, such as sales, to be logged remotely
- To enable technical tasks to be achieved more effectively by providing detailed design, specification and technical information remotely
- To reduce travel time and costs by improved routing
- To improve the management of health and safety issues through better communications

#### Our modelling indicates that Fieldforce enablement could:

- Improve the working lives of 30 million users
- Provide an operational benefit to organisations of US\$24.9 billion annually
- Avoid greenhouse gas emissions of 2 Mt CO<sub>2</sub> annually

Fieldforce solutions are likely to need smartphone/tablet access for heavy users with potential SMS-based access for less-frequent users and end-customer interactions. Although Fieldforce enablement services are already common practice in mature economies, to date, communication infrastructure limitations and cost have prohibited their widespread adoption elsewhere.

As network coverage has extended and the cost of smartphones and tablets continues to come down, this situation is set to change and the widespread adoption of these services is likely to have a profound effect on working practices in emerging markets. Solutions in emerging markets need to be robust, have simple and intuitive interfaces, be able to link to non-smartphones and cope with periods of no connectivity. The services also need to be designed and deployed in a way that considers any privacy concerns workers may have.

👂👂 As a critical, but decentralised, part of business workflow, remote workers can be empowered to enhance accuracy and efficiency. Expensive monitoring and evaluation infrastructure can easily be replaced by more targeted training and support of remote workers. 🗣️🗣️

John Vorster, Chief Operating Officer, Mezzanineware

### Looking ahead

Fieldforce enablement services could be further enhanced through integration with mIdentity solutions, to enable secure verification of identity and, for example, remote approval of contracts or money transfers. Extended services could also include full access to back-office systems such as enterprise resource planning (ERP) systems and enhanced logistics. Health and safety features could be augmented by geo-zoning and further authentication of certificate and personnel records to ensure that workers are only undertaking tasks for which they have been appropriately trained or approved.

Fieldforce enablement could also be integrated with mPayroll for the payment of remote workers, potentially based on hours worked or jobs completed. It could also be enhanced by providing mLearning services such as health and safety messages or quizzes directly linked to the activities that a worker may be due to perform on any particular day.

### The concept in action



Healthcare providers in emerging markets face limited resources and shortages of trained medical personnel. In areas without enough doctors and nurses, healthcare trusts use community-based caregivers to provide support. Using these valuable resources efficiently is critical – with over 100,000 community caregivers working throughout South Africa, monitoring their work can be difficult and time consuming.

Vodacom is working together with local NGOs and the South African government, to overcome these challenges using the specially designed Nompilo service, an example of Fieldforce enablement in action. Helping to boost the quality of patient care, Nompilo removes the need for excessive paperwork by enabling community caregivers to upload patient information directly to web-based servers, via their mobile phones. It also shows the care provider what type of information needs to be collected, both administrative and medical, to support the patient's treatment plan.

By 2020,  
Fieldforce  
enablement  
services could...

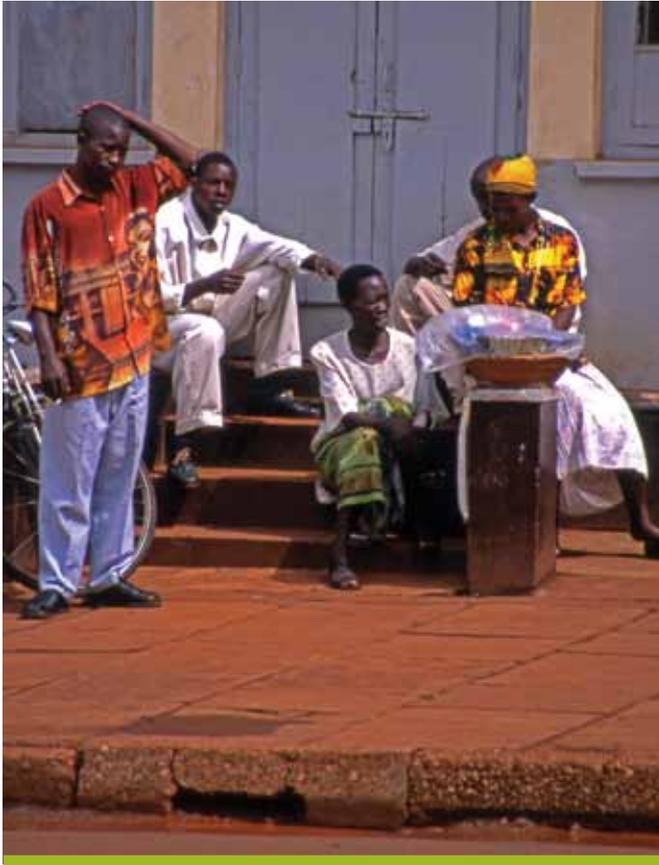
... improve the  
working lives of  
**30m**  
users

... provide an  
operational benefit  
to organisations of  
**US\$24.9bn**

... avoid greenhouse  
gas emissions of  
**2 Mt CO<sub>2</sub>**

# 3 mIdentity

mIdentity services can be used to enhance corporate security and provide authentication for workers when dealing with customers



mIdentity services use mobile phones to authenticate the identity of a worker, using a combination of a mobile signature and verification by a credible third party.

There are three main ways in which the mIdentity service could be used. The first, focused on employers, is a natural extension of Fieldforce enablement services and offers workers a way of establishing and authenticating their corporate identity in a more secure manner than previously available. This could enable workers to gain secure access to sensitive company systems remotely and enhance the security around business transactions conducted over mobile. In addition, the service could allow customers to have the confidence that they are dealing with a fully approved company representative. This could particularly benefit remote workers, such as health visitors, who may need to verify who they are or who have a need to access sensitive/personal data when they are out in the field.

The second way mIdentity services could be used is to provide a professional identity for self-employed workers/tradesmen who could be registered by industry bodies that can officially endorse their qualifications and skills. The third potential area for mIdentity services is at the national level. mIdentity solutions could link to national identity registers to enable citizens to more easily acquire or manage their official identity. At a national level, mIdentity could be used by governments to more effectively deliver social services.

## Benefits

### mIdentity has the potential:

#### For workers

- To enable workers to more easily prove their identity to third parties, including customers
- To enable workers to conduct transactions and access systems securely and remotely, thereby saving time and reducing the need to travel
- At a national level, to provide workers with a formal identity that allows them to access a wide range of services

#### For employers

- To more easily authenticate the credentials of workers
- To secure sensitive information and allow access to business systems and information by appropriate, authenticated workers
- To reduce security costs and improve health and safety controls by adding an extra layer of access control to hazardous areas

### Our modelling indicates that mIdentity could:

- Provide a valuable service for 16 million workers
- Offer organisational benefits of US\$1.5 billion annually

## Looking ahead

Although today, millions of people in the countries in this study do not have a formal identity, there will be a growing need for individuals to be able to prove who they are. As such, governments are increasingly focusing on the challenges that lack of identity presents. mIdentity services could be a key mechanism to help roll out formal identification programmes.

Despite offering significant benefits, midentity services have a number of challenges to overcome, not least those of cost and privacy. Establishing a secure identity using a SIM-enabled digital certificate and establishing a third-party verification service is potentially expensive and time consuming. Furthermore, midentity may raise significant privacy concerns around who ultimately owns the data generated and which organisations have the right to access it. These issues could also create tensions with other mobile services that benefit from partial anonymity, such as Worker Panel or mHealth services. This issue may be heightened in some markets due to sensitive political and cultural circumstances.

On a practical level in many markets, the rapid turnover of SIMs and use of multiple SIMs makes the prospect of a secure mobile identity scheme challenging, with the need to ensure robust systems are in place to minimise and deal with the risk of identity theft.

Although these challenges are significant they are not impossible to overcome and we believe the benefits will outweigh the challenges. The research shows that midentity has the potential to drive positive change in key ways. For example, it can enhance the security of mobile banking and mobile money transfer through the more robust authentication of transactions, such as the verification of payroll receipts. The service could also be integrated with official (government) identity schemes and, in so doing, increase access to those currently outside formal schemes, at relatively low cost. Ultimately, midentity has the potential to supplement national ID schemes thus enabling, for example, the secure transfer of pensions and social benefits via mobile money.

## The concept in action



In India, MobME Wireless Solutions has developed Mobile Express, a mobile digital signature service that embeds a legally valid digital signature into the SIM of any mobile phone. Currently in test, the signature is secured by a four-digit PIN and will be used to securely authenticate any transaction, sign any digital document or authenticate a bank payment.

In India, digital signatures are a valid and legally recognised equivalent to normal, everyday signatures, meaning that anything that can be authorised in real life using an individual's signature can be signed for with a mobile phone.

It will also be possible to use this technology for doctors to sign prescriptions and for individuals to apply for a passport or file a birth certificate, for example, by providing their signatures digitally and remotely using their mobile phones.

**By 2020,  
midentity  
services could...**

... provide a  
valuable service for  
**16m**  
workers

... offer  
organisational  
benefits of  
**US\$1.5bn**

# 4 mLearning

mLearning can deliver basic skills and job-related training via a mobile device



mLearning could provide cost-effective and affordable lessons delivered by voice, SMS or USSD using content designed to improve numeracy, literacy or to build work-related knowledge and skills. The primary audience would be employed workers, where mLearning could offer specific job-related training and updates around product knowledge or health and safety issues. Well prepared and delivered mobile training could enable more people to access education, while reducing the need for costly training facilities.

Although it cannot replace personal tuition, the innovation comes from combining access to tutors with interactive coursework, such as automated tests, quizzes and even games. Workers would be able to ask questions and receive responses. Their competence and learning could be further assessed through SMS-based questionnaires, with the aim of providing workers with the potential opportunity to gain a formal qualification once the course is completed.

mLearning could either be used as a stand-alone training aid or more likely as part of an integrated process with other channels such as classroom or IT-based training. The rise in MOOCs (“massive open online courses”) over the last five years also suggests that mobile could have a role in online programmes used by those in tertiary education who are unable to afford the fees charged by traditional universities.

## Benefits

### mLearning has the potential:

#### For workers

- To help build basic skills that will in turn improve their employment prospects
- To provide job-specific information and training on a variety of topics including new product details, company processes or regulatory compliance
- To provide timely reminders of key issues such as health, safety and security procedures, particularly for remote workers

#### For employers

- To improve productivity and performance of workers by enhancing their knowledge and skills of key business processes and activities – for example product knowledge for sales forces or safety practices for lone employees working in hazardous situations
- To help build engagement and loyalty among workers by providing support, particularly for those in the field
- To improve the effectiveness of traditional training methods by supplementing them with regular and timely information and assessments by mobile

### Our modelling indicates that mLearning:

- Has the potential to be used by 12 million people
- Will benefit organisations as a result of improved performance by US\$1.4 billion annually

## Looking ahead

In order for the service to achieve widespread adoption, experimentation is required to develop a viable training mechanism that can be delivered over basic mobile devices. Initial content development costs are likely to be relatively high, with ongoing costs for course scheduling and monitoring. Low literacy rates may also prove a barrier in some markets and multilingual capability may be required in some countries.

As smartphone penetration rises, more detailed content could be delivered. Workers could also access a wide variety of online resources through tailored portals or workplace learning tools.

From an employer's perspective, it will be important to ensure that training material is relevant to the user's circumstances and of interest to them. Partnerships will be needed to provide appropriate training expertise and up-to-date and engaging content. Over time, employers may even wish to create externally accredited training programmes for delivery via smartphone platforms.

Once the concept of mLearning is established, the service could extend its offering to include access to library information for self-study, including business books and online resources, so that workers can build their own core skills. As more educational content moves online, this in turn could lead to access to the formal education sector, particularly through the use of tablets and the mobile internet. mLearning for business could also be applied in schools, linking commercial need more directly with the workers of tomorrow.

## The concept in action



Running in 30 schools in three provinces in South Africa, Nokia Mobile Mathematics is an example of mLearning in action. Using mobile phones to help people to improve their mathematics ability, the service is dependent on broadband access that connects students to Mxit, a social networking site, which is used by millions of young people in South Africa. The students can work through short theory sections, answer questions by topic and degree of difficulty, and receive immediate feedback, which can be compared with classmates in their school, in other provinces and nationally.

By 2020,  
mLearning  
could...

... be used by  
**12m**  
people

... benefit  
organisations as a  
result of improved  
performance by  
**US\$1.4bn**

## 5 Worker Panel

Worker Panel gathers anonymous data about working conditions directly from workers to enhance visibility across global supply chains



Worker Panel<sup>24</sup> is aimed at multinational companies that face an increasing need to ensure workers within their global supply chains experience acceptable labour standards. Poor labour conditions include long working hours, harsh disciplinary processes, discrimination, and child and forced labour. Where these standards are monitored, this is usually through infrequent site audits by downstream buyers.

The Worker Panel solution will allow companies to better understand the working conditions experienced by their suppliers' workforce through the collection of regular, real-time information direct from workers. This information can enable improved supplier screening and inform companies, allowing them to improve work conditions and worker wellbeing on the ground.

The Worker Panel solution can be used on a basic mobile device at low cost, enabling rollout to both formal and informal workers in the global supply chains of companies in industries such as clothing, food or electronics. An SMS/instant message questionnaire would be used to ask workers about their working conditions, rates of pay, concerns and general feelings about their job. Their responses would be aggregated anonymously and provided directly to downstream customers to gain insight into the way the workforce is being treated. The platform would collect data from a large number of workers who have agreed to participate in an anonymous panel via their mobile.

The system could potentially be used by factory management to collect feedback from their workers and allow two-way communication so that management could also send alerts and information back to workers, thus improving trust and transparency. In all cases, a trusted intermediary, such as an NGO, is likely to be required to gather and process the data in order to assure end-users of their anonymity and security.

### Benefits

#### Worker Panel has the potential:

##### For workers

- To offer real-time visibility of their concerns on an anonymous basis, so that issues can be resolved quickly and lead to an improvement in working conditions
- To improve transparency, which should result in better working relationships, improved wages and conditions, which in turn, should encourage worker empowerment, wellbeing and loyalty

##### For employers

- To provide greater transparency and real-time feedback on working conditions in global corporations' supply chains, enhancing reputation and minimising risk
- To augment the data from site audits to improve labour standards and compliance with codes of conduct in a more timely manner, potentially reducing the need for frequent, time-consuming and expensive audits
- To enable companies to have more proactive discussions with suppliers on workforce management and move quickly to address problem situations, invest to enhance working conditions or even deselect suppliers with persistent issues

## Our modelling indicates that Worker Panel services could:

- Benefit 18 million workers in globalised supply chains
- Provide livelihood benefits of US\$2.1 billion annually

Global companies are under increasing pressure to be more accountable for the pay and working conditions experienced by workers in their supply chains. It is increasingly recognised that the traditional approach of conducting onsite audits has limitations, as it only provides a snapshot of conditions within a supplier's operations and real issues can be missed. It is important for customers to have accurate information that provides insight into critical issues. This will in turn allow management and/or customers to address issues quickly and more effectively. It also offers workers the chance to have their views heard directly by management and/or downstream customers before they become business-critical risks. The Worker Panel also has the potential to include a whistle-blowing service or hotline for workers.

### Looking ahead

The main challenge for the Worker Panel service is to recruit and involve workers by ensuring that they fully trust the service. Workers need to support the initiative and be confident that their responses are anonymous, that they will not face any repercussions and that their concerns will be acted upon. Partnering with trusted local NGOs to manage recruitment to the Worker Panel may help address this issue. In addition, recruitment of Panel members might need to be supported by small payments of airtime or mobile money so that workers are compensated for loss of time and the costs of SMS responses.

The Panel could also be used for information sharing, for example, providing workers with generic information on key topics such as performance, wages and corporate news and information, in order to improve engagement and motivation. The Panel could also be expanded to deliver basic training services and questionnaires to workers in a similar vein to the mLearning opportunity outlined on pages 20 and 21.

Worker Panels also have the potential to be used to collect demographic information about workers and their families in order to improve understanding of their circumstances. In doing this, the Worker Panel could support local governments in accurate service planning and general provision based on local need.

## The concept in action



Operating in Peru, Labor Link, from Good World Solutions, is an example of a Worker Panel in action. It offers a worker-centric platform that enables direct worker engagement via mobile phones.

It has two core components. First, it pushes relevant and actionable information to base-of-the-pyramid workers. Information varies based on context, but typically it includes messages about government services, as well as labour rights, education, training and financial security. Its second component is to collect information for clients. Mobile surveys are sent to participating workers who are asked questions around job satisfaction, working and living conditions, compensation and other topics using voice recordings. All answers are anonymous and saved in a cloud-based database. The responses are then analysed and returned to the company. To date, there has been a 55% employee response rate with 10,000 workers using the programme.

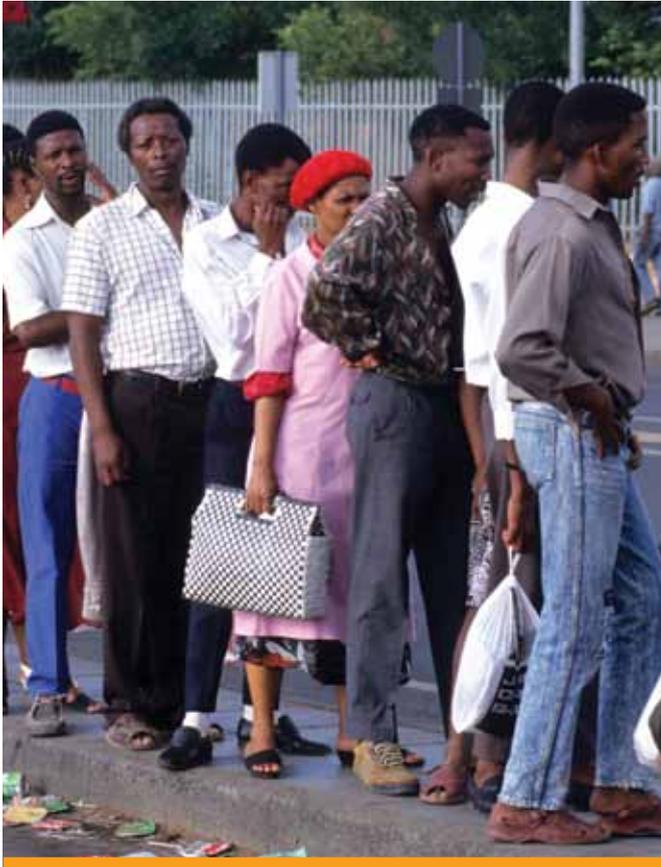
**By 2020, the Worker Panel could...**

... benefit  
**18m**  
workers in  
globalised supply  
chains

... provide livelihood  
benefits of  
**US\$2.1bn**

# 6 mPayroll

mPayroll is a reliable way of using mobile technology to make secure, cost-effective wage payments to unbanked workers



mPayroll services build on the existing range of mobile money platforms that are widely deployed in emerging markets. Workers are identified by their mobile number and are encouraged to participate through an easy-to-use sign-up process. Their salary can then be delivered securely direct to a mobile wallet such as Vodafone's M-Pesa or to a bank account.

The service can provide integration between payroll processing software and the mobile money platform, enabling large-volume pay runs and the production of appropriate pay slips. Text messages could also act in lieu of paper wage receipts and by paying into a mobile account, workers are able to build a financial history which, in turn, can provide the unbanked with access to more advanced financial services such as loans. The mPayroll service could function across even the most basic of handsets, making the service widely accessible.

## Benefits

### mPayroll has the potential:

#### For workers

- To make payment of their wages more secure and reliable
- To reduce the time spent travelling and/or waiting to receive cash wages
- To reduce the opportunity for fraud and provide greater transparency on payments and deductions
- To help build a financial history that can give them access to further financial services
- To enable simple onward payment of bills and remittances to family members using mobile money without having to pay 'cash-in' charges

#### For employers

- To reduce the cost and time associated with the collection and delivery of cash
- To reduce the need for transportation of cash and reduce the cost of corruption
- To improve the employer-worker relationship by increasing transparency on payments and deductions

👂👂 Our workers come to be paid on Saturdays. This is out of working hours and expensive to manage for both the company and the employees. 🙄🙄

Chris Brett, Senior VP and Head of Corporate Responsibility and Sustainability, Olam International

### Our modelling indicates that mPayroll:

- Has the potential to be used by 48 million workers by 2020, extending financial inclusion to an additional 4% of adults
- Could offer business savings of over US\$2.8 billion annually

mPayroll offers increased payment transparency because workers can receive text message receipts of all salary payments, including a note of any salary deductions.

Furthermore, it reduces the time taken for workers to travel to collect their salary and, because it is electronic money, it also reduces their risk of the cash being stolen as they will no longer be obliged to carry or hide large amounts of cash. One option is to set up the system in a way that workers still have to be physically present and only get paid on presentation of their mobile phone as proof of identity. This is more secure but obviously reduces the benefit from reduced travel and waiting time.

For employers, mPayroll can directly reduce the cost of handling cash, transport and insurance, which is currently estimated to be in excess of 1% of the value of cash wage payments. It also reduces the risk of corruption happening through unofficial deductions or 'skimming' and the payment of 'ghost workers', which can occur during cash distribution.

### Looking ahead

Mobile money is already being used for business-to-worker payments in a small number of cases. However, despite its huge potential, there are a number of challenges that mPayroll needs to address in order to drive scale. Working alongside regulators and banks is vital to the overall success of the service, to ensure the development of technology-agnostic payment mechanisms that allow the service to work across any mobile network.

mPayroll is also dependent upon building trust and the general acceptance of an existing mobile money infrastructure to enable salary withdrawals. Once established, local agents must be suitably equipped to manage large salary disbursements when necessary. Public trust in the system is also key. In some countries, for example Egypt, this may be particularly challenging due to a strong cultural preference for cash. Finally, some workers may also have a preference to remain outside the formal sector and be paid in cash.

In the future, mPayroll technology could be used for a wider range of payments, including expenses reimbursement, benefit contributions and other disbursements. This could be particularly interesting to governments, which could link mobile money accounts with national identity schemes and so better manage the distribution, for example, of health vouchers and pension provision.

### The concept in action



Since 2007, Kenya has been leading the way with an innovative mobile phone technology solution that has transformed the lives of millions of people and businesses, Vodafone's M-Pesa mobile money transfer system. It is enabling people who have access to a mobile phone, but do not have access to a bank account or other financial services, to send and receive money, top up airtime and make bill payments safely and efficiently, by sending a text message.

M-Pesa is increasingly being used for payroll purposes in Kenya, with the KNEC (the government exam board) using M-Pesa to pay exam supervisors across 60,000 schools, which USAID estimated had reduced the cost of making these payments by 86%.

By 2020,  
mPayroll  
could...

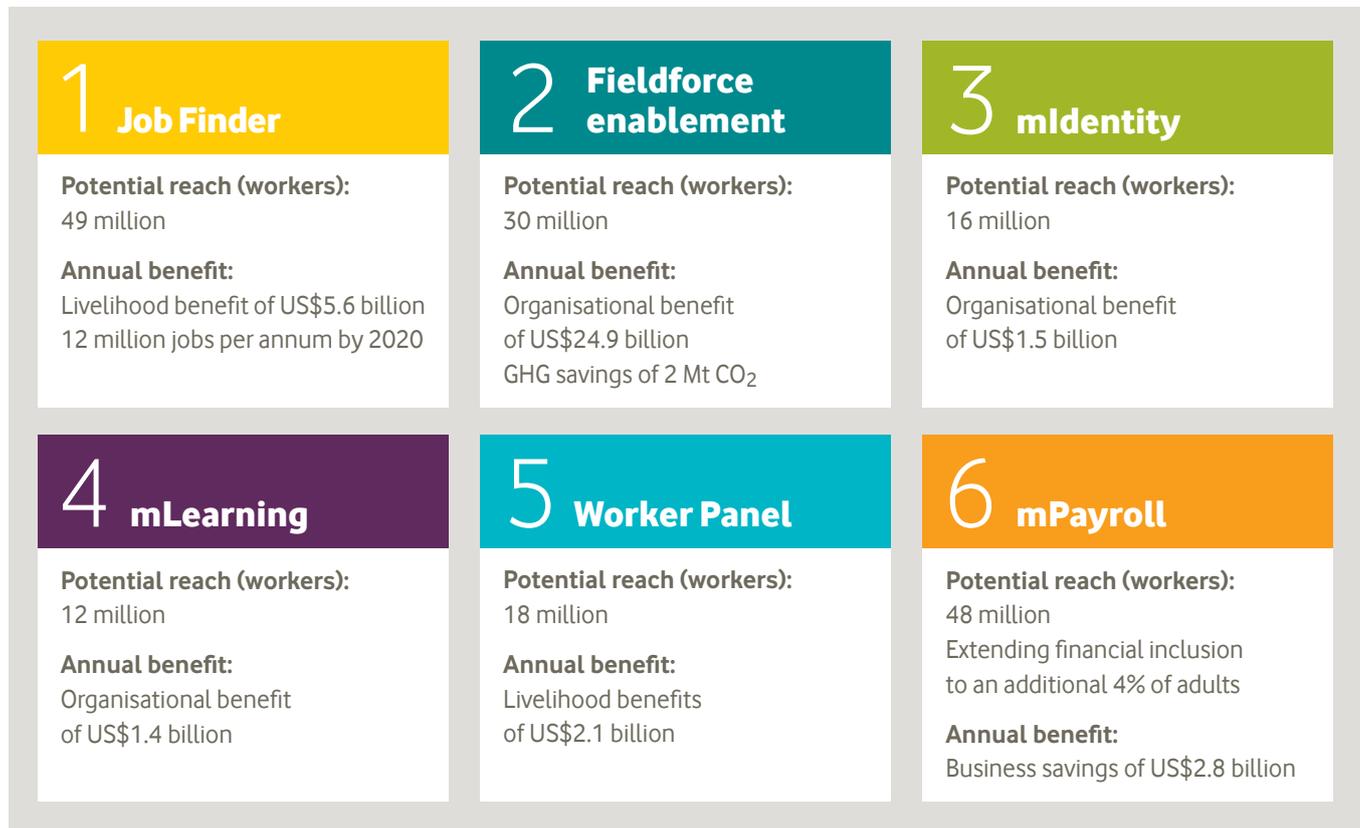
... be used by  
**48m**  
workers

... extend financial  
inclusion to an  
additional  
**4%**  
of adults

... offer business  
savings of over  
**US\$2.8bn**

# Next steps

Connected Worker has identified six major opportunities for mobile technology to enhance the lives of millions of workers in emerging markets



## Summary of findings

This report has identified six major opportunities for mobile technology to enhance the lives of millions of workers and improve the productivity of organisations operating in emerging markets.

Collectively, they have the potential to increase worker incomes by over US\$7.7 billion. Job Finder has the potential to match 12 million workers to jobs annually by 2020, with an additional US\$5.6 billion of extra income generated for job seekers from both the formal and informal economy. The ability to improve conditions for workers in the supply chains of global companies, through Worker Panel solutions, could not only generate US\$2.1 billion in extra income for workers, but could enable those companies to improve their ability to monitor and impact worker wellbeing.

With a potential reach of 48 million workers, mPayroll could extend financial inclusion to an additional 4% of the adult population, enabling them to build a financial history that can give them access to further financial services. It can also enable organisations to reduce the cost of managing a cash payroll significantly, realising a potential US\$2.8 billion in savings

annually by 2020. Overall, the services and solutions modelled here could offer US\$30.6 billion in benefits to companies and other organisations, with over 80% of this economic benefit coming from Fieldforce enablement services, where US\$24.9 billion of operational savings could be realised from an increase in workforce productivity.

This report demonstrates that there are many ways to address the key issues facing workers and the organisations that employ them using mobile technology. Creating a connected workforce is also a huge opportunity for mobile operators. The findings suggest that by 2020, the six selected services could be worth over US\$8 billion in new revenues annually and an estimated total of 174 million connections. Critically, by showing how it is possible to improve organisational productivity and worker wellbeing, mobile is proving once again how it can fundamentally change not only the way we communicate, but also the way we work.



## Moving forward

A series of actions need to be taken by different stakeholders to start to translate the potential identified in this research into tangible benefits for workers and organisations alike.

### Mobile operators

Having identified the potential for positive change, the next stage in the process is to outline how to translate this potential into reality. It is clear that mobile operators have a leading role to play in the successful realisation of the benefits outlined in this study, but they will need the involvement of other stakeholders including private enterprises, NGOs and governments. Together, their combined knowledge and expertise will help to drive these and other initiatives forward to maximise the benefits already outlined.

Although there is a strong commercial opportunity for many of the areas explored, further research and development will be needed in order to articulate specific business models. Each service will have to be developed with due consideration for individual market circumstances, worker and organisation requirements and within the relevant regulatory framework.

For some of the opportunities identified, this process will be most effective when organisations combine different specialities and work together to achieve meaningful results. There is a need, for example, to establish recruitment partners to provide scale, both for workers and for organisations, for the Job Finder service; training partners are needed to deliver accredited materials and produce relevant content for mLearning initiatives; payroll processing software may require integration with mPayroll; and systems integration partners are needed to ensure the deployment of Fieldforce enablement services. Regulatory support is also vital to the successful delivery of these services and in some cases may need further development.

### Enterprise

The opportunities outlined above all offer significant benefits for organisations operating in these markets to realise efficiencies and meet corporate responsibility goals. Vodafone believes mobile-driven solutions can address the challenges companies are facing in everything from recruitment, training and cash handling to payroll processing and remote workforce management. Once the business case has been established it will be important to find appropriate ways to engage with workers and worker representatives, in order to gain acceptance of these new technologies, as well as overcome practical barriers such as multiple SIM ownership and literacy issues.

## Governments

Regulatory policy increasingly shapes the structure and conduct of industries and sets in motion major shifts in economic value, so government support is integral to the successful development of these initiatives. Governments will need, for example, to ensure that regulation continues to facilitate the development of mobile money and mPayroll solutions. Policymakers should also consider the potential for mobile to enhance systems for managing identity across the population, including for identity creation and event registration (e.g. births, deaths) and to facilitate the use of electronic signatures through regulatory support.

Governments can, of course, help to generate benefits of scale by adopting the services for public sector employees. Fieldforce enablement and mPayroll services are particularly applicable in sectors such as health, education and transport. Governments can also assist NGOs in the rollout of services that may not have the same commercial viability but still have significant potential to enhance worker livelihoods, including Job Finder, mLearning and Worker Panel services.

### NGOs

NGOs play a core role in the development of emerging economies; their support will help further strengthen the livelihood benefits these opportunities can bring, and will be vital to drive adoption and rollout. NGO support in building local capacity and skills to use mobile solutions such as Job Finder and mLearning will greatly enhance the potential of those services. NGOs can provide access to existing networks of workers to help to build critical mass, particularly for the Job Finder and Worker Panel opportunities.

NGOs and development agencies could also use mobile technology to support existing skills and capacity-building projects or to equip NGO field workers with appropriate Fieldforce enablement solutions.

Finally, the wealth of knowledge that NGOs can offer will help operators, business partners and government to deliver services that offer commercial benefit and enable socio-economic benefit for those who need it most.



# Appendix 1 – Stakeholders

## Interviews were conducted with a range of people including:

### Corporates:

Chris Brett: Senior VP and Head of Corporate Responsibility and Sustainability, Olam International

Zoe Cokeliss: Corporate Responsibility Communications Manager, Pentland Brands

Erin Ferguson Ormond: Talent and Recruitment Africa, G4S

Dirk Reinhard: Vice Chair of the Foundation, Munich Re

Hannah Shoosmith: Senior Ethical Trading Manager, Arcadia

### Industry bodies:

Julia Burchell: mWomen, GSMA

Lauren Dawes: mSchools, GSMA

Moses Mwuara: President, Enablis Africa

Fiona Smith: Director mAgri Programme, GSMA

Chris Williamson: Mobile Innovations, GSMA

### Service/technology providers:

Doug Cahn: President, Clear Voice Hotline

Yves Eonnet: CEO, Tagattitude

Rosey Hurst: Director, Impactt

Jacob Korenblum: CEO, Souktel

### NGOs:

David Edelstein: Director of the Grameen Foundation Technology Centre, Grameen Foundation

Mike Elliott: Program Director, Connected Farmer Alliance, TechnoServe, Tanzania

Martin Mbalu: Regional ICT Services Manager East and Southern Africa, Christian Aid

Christine Svarer: Head of Private Sector Engagement, Care International

### Multilaterals/development organisations:

Toni Elias and Nicholas Friederici: Mobile Innovations, World Bank

Judith Payne: e-Business Director, USAID

Siddhartha Raja: ICT Department, World Bank

Lucas Robinson: Independent Development Professional

William Salter: Senior Adviser, ILO

Arun Sharma: Operations Officer Access to Finance Advisory – South Asia IFC

Shelley Spencer: Better Work Programmes (Indonesia), USAID

### Vodafone Group:

Claire Alexandre: Head of Commercial and Strategy, Mobile Payments

Harlow Hagee: Business Development Manager, Energy and Utilities

Nick Kamen: Head of Energy and Utilities Industry

Dan Lloyd: Director of Public Policy Africa, Asia, Australasia

Andy McFarlane: Head of Marketing, Vodafone Global Enterprise

Topyster Namasaka-Muga: Principal Product Development Manager, Mobile Payments

Mike Ritchie-Cox: Head of Consumer Goods Industry

Cate Sutherland: Propositions Manager, Energy and Utilities Manager

### Vodafone markets:

Ghada Adel: Head of Enterprising Marketing, Vodafone Egypt

Nick Gliddon: Enterprise Business Unit Director, Vodafone Egypt

Vuyani Jarana: Chief Officer, Enterprise Business Unit, Vodacom

Lutfullah Kitapci: Head of Mass Consumer Segments, Vodafone Turkey

Yigit Ozcan: Mass Social Bus Model Segment Manager, Vodafone Turkey



## Stakeholder participants in workshops in South Africa

Gonzalo Aramayo-Careaga: ICTD/e-governance Specialist, UNDP

Lazare Edzogo: NEPAD

Samira Hotobah-During: Partnership and Resource Mobilization, Office of the CEO, NEPAD

Dianne Hutchinson: National Account Manager, Vodacom

Dr Edmund Katiti: Acting Head, NEPAD e-Africa Programme, NEPAD

Kaburo Kobia: Digital Lead, Kenya, Government of Kenya, ICT

Derrick Kotze: Director, mLabs SA

Martin Mbalu: Regional ICT Services Manager, South and East Africa, Christian Aid

Moses Mwaura: President, Enablis, Africa

Michael Mwasikakata: Employment and Labour Market Information System Specialist, ILO, DWT for East and Southern Africa

Olande Stols: CSR Manager, DHL

Clayton Swart: Communications Manager, NBI

John Vorster: COO, Mezzanineware

Gavin Watson: Project Manager Africa, GIZ

Hillary Wise: Deputy Regional Director – West and Southern Africa, Technoserve

## Stakeholder participants in workshops in Delhi

Bala Balasubramanian: DFID

Kristine Brusletto: Program Associate, UNOPS

Manish Chum: Manager – Corporate HR, Whirlpool

Amit Kaushik: Educomp Infrastructure & School Management Ltd

Rosey Hurst: Director, Impactt

Balwant Mehta: Mobile phone usage expert, Institute for Human Development

Jennifer Meunier: Corporate Engagement and Strategic Advisor, WWF

Sunita Purushottam: Principal Consultant, Sustainability, Infosys

Shomiko Raha: DFID

Mr S Ramesh: Managing Director, Geosansar

Induja Rai: Programme Coordinator – Partnerships and Emerging Themes, Oxfam

Siddhartha Sankar: Director, Drishtee

Moutushi Sengupta: Director – Programme and Advocacy, Oxfam, India

Sanjay Kumar Sinha: Regional ICT Manager, Christian Aid

Arun Sharma: Operations Officer Access to Finance Advisory – South Asia IFC

Abhishek Sikka: Infosys Sustainability Unit, Infosys

Minu Thommen: Don Bosco Tech



# 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.

For the purpose of forecasting data to 2020, where possible data estimates/forecasts were sourced from internationally recognised bodies. In instances where forecast data was not available, assumptions related to growth rates were made from valid sources or, where appropriate, data points were flat-lined through to 2020 to avoid overestimation of output figures.

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
Employment metrics	Economically active population in employment	ILO KILM 7th edition	Gaps in historic time series	Employment ratio is fixed across remaining years up to 2020.
	Employment by sector (agriculture, industries and services)	World Bank, WDI	Gaps in historic time series	Employment distribution across sectors/industries is fixed across remaining years up to 2020.
	Wage and salaried workers	World Bank, WDI	Gaps in historic time series	Employment distribution across sectors/industries is fixed across remaining years up to 2020.
	Informal employment	World Bank, WDI	Gaps in historic time series	Informal employment ratio is fixed across remaining years up to 2020. Informal workers in manufacturing and services industries derived after subtraction of agricultural workers.
Financial inclusion	Banking metrics	World Bank, Findex Database, 2011	Gaps in historic time series	Key banking metrics assumed to be static across period to 2020.
Technology	Mobile market penetration	Wireless Intelligence	Wireless Intelligence provides data only for selected years	Used as proxy for proportion of population who have access to mobile. Multiple sources used to calculate growth over years, with penetration rate capped at 97%.
	Smartphone penetration	Various	Limited data availability	Used as proxy for proportion of population who have access to smartphones. Penetration rates capped at 60% for all markets (except Qatar at 80%). Multiple sources used to calculate growth rates.
Wages	Average annual wages	National Governments, EIU	Limited data availability	GDP growth rate used as proxy to estimate growth in average annual wages.



## Modelling methodology

The base market, service adoption and key benefits were modelled using a consistent methodology across each of the six opportunities.

Job Finder		
Base market	Metric	Unemployed workforce and informal sector job-seekers
	Assumption	<ul style="list-style-type: none"> <li>Informal sector workforce are continuously job-seeking due to temporary nature of work</li> <li>Literacy required to place CV and read ads</li> </ul>
Service adoption	Metric	No. of service users
	Assumption	<ul style="list-style-type: none"> <li>Adoption rate based on previous pilot projects</li> <li>Users assumed to have basic phones; those with smartphones are outside target market</li> </ul>
Employer or worker livelihood benefit	Metric	Increased income generation for job finder successes
	Assumption	<ul style="list-style-type: none"> <li>Success rate based on previous pilots</li> <li>Wage uplift based on average increased time in work from previous pilot studies</li> </ul>
CO <sub>2</sub> reduction benefit	Metric	N/A
	Assumption	N/A
Fieldforce enablement		
Base market	Metric	Employed formal workforce working remotely from company premises
	Assumption	<ul style="list-style-type: none"> <li>% figures for workers in the field for relevant industry sectors</li> <li>Literacy required to use service</li> </ul>
Service adoption	Metric	No. of service users
	Assumption	<ul style="list-style-type: none"> <li>Data coverage quality used as proxy for understanding initial adoption of data services</li> <li>Smartphone-based service assumed where data coverage available</li> <li>Adoption rate based on case studies</li> </ul>
Employer or worker livelihood benefit	Metric	Operational savings from increased workforce productivity
	Assumption	<ul style="list-style-type: none"> <li>Constant productivity savings per worker across years from more efficient field work</li> </ul>
CO <sub>2</sub> reduction benefit	Metric	Annual reduction in emissions per field worker using service
	Assumption	<ul style="list-style-type: none"> <li>Field workers reduce at least one return journey of constant distance to an office per day</li> </ul>
mIdentity		
Base market	Metric	Employed formal workforce working remotely from company premises
	Assumption	<ul style="list-style-type: none"> <li>% figures for workers in the field attributed to different industry sectors</li> <li>Literacy required to use service</li> </ul>
Service adoption	Metric	No. of service users
	Assumption	<ul style="list-style-type: none"> <li>Service relevant to users of any phone type</li> <li>Adoption rate based on case studies</li> </ul>
Employer or worker livelihood benefit	Metric	Operational savings from increased workforce productivity
	Assumption	<ul style="list-style-type: none"> <li>Constant productivity savings per worker across years from secure identity verification in the field</li> </ul>
CO <sub>2</sub> reduction benefit	Metric	N/A
	Assumption	N/A



## Modelling methodology

mLearning		
	Metric	Literate, employed, waged workforce
Base market	Assumption	<ul style="list-style-type: none"> <li>Formally employed, waged workers are the primary target market for employer purchase of mLearning services</li> <li>Literacy required to use service</li> </ul>
Service adoption	Metric	No. of service users
	Assumption	<ul style="list-style-type: none"> <li>Adoption rate based on previous pilot projects</li> <li>Users assumed to have basic phones; those with smartphones are assumed to access internet-based training services</li> </ul>
Employer or worker livelihood benefit	Metric	Operational savings from increased workforce productivity
	Assumption	<ul style="list-style-type: none"> <li>Constant productivity savings assumed per worker across years from increased training intensity</li> </ul>
CO <sub>2</sub> reduction benefit	Metric	N/A
	Assumption	N/A
Worker Panel		
Base market	Metric	Workers in export-focused industry/services sectors (focus on working conditions in global supply chains)
	Assumption	<ul style="list-style-type: none"> <li>% GDP attributed to exports of goods and services assumed to be proportional to number of formal workers in this sector working in manufacturing and services</li> <li>Literacy required to use service</li> </ul>
Service adoption	Metric	No. of service users
	Assumption	<ul style="list-style-type: none"> <li>Service relevant to users of any phone type</li> <li>Adoption rate based on previous projects</li> </ul>
Employer or worker livelihood benefit	Metric	Wage uplift for workers in market sector
	Assumption	<ul style="list-style-type: none"> <li>Improved work conditions/wages are an indirect benefit of the worker panels</li> </ul>
CO <sub>2</sub> reduction benefit	Metric	N/A
	Assumption	N/A
mPayroll		
Base market	Metric	Employed unbanked waged and non-waged workforce (less agriculture)
	Assumption	<ul style="list-style-type: none"> <li>Workers receiving payment to bank accounts are excluded from the target market</li> <li>Unbanked are considered for the mPayroll market</li> <li>Literacy rate deemed non-restrictive</li> </ul>
Service adoption	Metric	No. of service users
	Assumption	<ul style="list-style-type: none"> <li>Mobile penetration used as a proxy for understanding base market (service can be smartphone independent)</li> <li>Adoption rate based on previous projects</li> </ul>
Employer or worker livelihood benefit	Metric	Operational savings from reduced salary distribution costs
	Assumption	<ul style="list-style-type: none"> <li>Cost of mPayroll per transaction compared to a cash transaction</li> </ul>
CO <sub>2</sub> reduction benefit	Metric	N/A
	Assumption	N/A



# Appendix 3 – References

## Endnotes

- <sup>1</sup> Customer numbers are as at 31 December 2012
- <sup>2</sup> See [http://www.vodafone.com/content/dam/vodafone/about/sustainability/2011/pdf/connected\\_agriculture.pdf](http://www.vodafone.com/content/dam/vodafone/about/sustainability/2011/pdf/connected_agriculture.pdf) and <http://mhealth.vodafone.com/home/>
- <sup>3</sup> <http://www.ifpri.org/publication/world-population-projections-2020>
- <sup>4</sup> [http://laborsta.ilo.org/applv8/data/EAPEP/eapep\\_E.html](http://laborsta.ilo.org/applv8/data/EAPEP/eapep_E.html)
- <sup>5</sup> <http://www.imf.org/external/pubs/ft/weo/2013/update/01/index.htm>
- <sup>6</sup> <http://www.africaneconomicoutlook.org/en/>
- <sup>7</sup> <http://www.afdb.org/en/countries/east-africa/kenya/kenya-economic-outlook>
- <sup>8</sup> <http://indiabudget.nic.in/budget2011-2012/es2010-11/echap-10.pdf>
- <sup>9</sup> <https://mobiledevelopmentintelligence.com>
- <sup>10</sup> [http://www.vodafone.com/content/dam/vodafone/about/public\\_policy/policy\\_papers/public\\_policy\\_series\\_2.pdf](http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_2.pdf) and [http://www.vodafone.com/content/dam/vodafone/about/public\\_policy/policy\\_papers/public\\_policy\\_series\\_9.pdf](http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_9.pdf)
- <sup>11</sup> Communications Commission of Kenya [http://www.cck.go.ke/resc/downloads/SECTOR\\_STATISTICS\\_REPORT\\_Q4\\_11-12.pdf](http://www.cck.go.ke/resc/downloads/SECTOR_STATISTICS_REPORT_Q4_11-12.pdf)
- <sup>12</sup> <http://www.iamai.in>
- <sup>13</sup> <http://www.economist.com/news/middle-east-and-africa/21566022-report-describes-sacrifices-poor-make-keep-mobile-phone-vital>
- <sup>14</sup> [http://laborsta.ilo.org/data\\_topic\\_E.html](http://laborsta.ilo.org/data_topic_E.html)
- <sup>15</sup> [http://laborsta.ilo.org/data\\_topic\\_E.html](http://laborsta.ilo.org/data_topic_E.html)
- <sup>16</sup> [http://laborsta.ilo.org/data\\_topic\\_E.html](http://laborsta.ilo.org/data_topic_E.html)
- <sup>17</sup> [http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2011/04/25/000158349\\_20110425112950/Rendered/PDF/WPS5640.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2011/04/25/000158349_20110425112950/Rendered/PDF/WPS5640.pdf)
- <sup>18</sup> [http://laborsta.ilo.org/applv8/data/EAPEP/eapep\\_E.html](http://laborsta.ilo.org/applv8/data/EAPEP/eapep_E.html)
- <sup>19</sup> <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,contentMDK:20205999~menuPK:497971~pagePK:148956~piPK:216618~theSitePK:336992,00.html>
- <sup>20</sup> Impactt is a consultancy specialising in ethical trade, human rights, labour standards, gender and international development. Impactt has been recording and analysing information from factory visits since August 2006. Impactt's five-year data set includes visits to over 567 factories in a variety of sectors which employ over 367,996 workers.
- <sup>21</sup> <http://www.economist.com/news/briefing/21564829-it-has-made-progress-becoming-full-democracy-1994-failure-leadership-means>
- <sup>22</sup> <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Economic%20Brief%20-%20Mobile%20Money%20Services,%20Regulation%20and%20Creating%20an%20Enabling%20Environment%20in%20Africa.pdf>
- <sup>23</sup> <http://www.gsma.com/mobilefordevelopment/programmes/mobile-money-for-the-unbanked>
- <sup>24</sup> Impactt is a consultancy specialising in ethical trade, human rights, labour standards, gender and international development. Impactt's services include a worker panel concept. More details are available at <http://www.impacttlimited.com/our-work/worker-panel>

For the purposes of forecasting data to 2020 in this report, where possible, data estimates and forecasts have been sourced from internationally recognised bodies. Where such forecasts were not available, projections have been made based on assumptions and estimates. The forward-looking data in this report is intended to give an indication of the potential future benefits of the opportunities presented. As with all forward-looking data, it is inherently uncertain because it depends on unknown circumstances that will occur in the future. The potential benefits may not therefore be realised.

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