

CROSS-CUTTING INCLUSIVE INNOVATIONS

Using Information Communication Technology (ICT) as an Enabler

Companies employ ICT solutions to benefit low-income consumers and unlock opportunities for scale

Photo from ClickMedix

HIGHLIGHTS

- It is challenging to give low-income consumers in remote and rural areas access to affordable essential goods and services, particularly in health, education and finance.
- Inclusive companies are developing solutions that use mobile and other information technology to improve access and quality of services, such as Internet kiosks for payments and smartphones for medical information for health professionals.



Summary

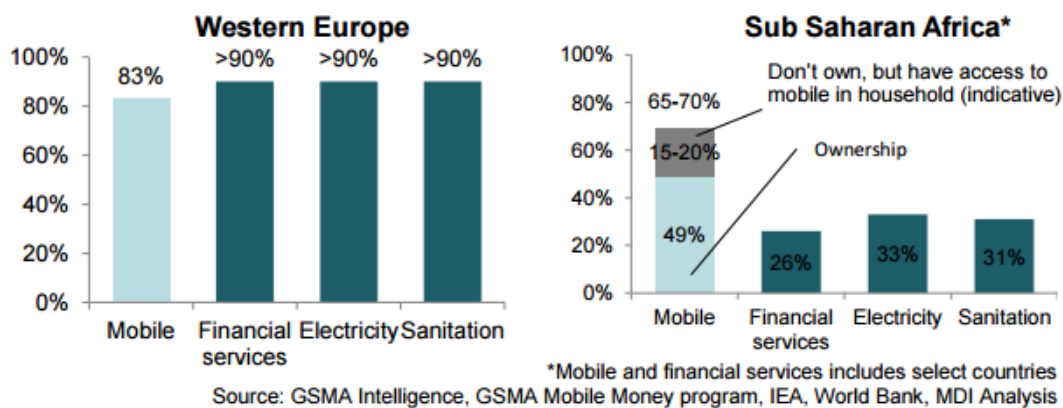
With the rapid spread of the internet and mobile technology to developing countries in recent years, ICT solutions are increasingly being seen as key enablers to solving development challenges. These solutions can deliver expertise and information to low-income consumers who do not have the physical or financial access to critical resources. They allow people living in hard to reach areas to access essential goods and services and provide them with opportunities to significantly improve their lives. The use of ICT also unlocks opportunities for growth and scale for companies working at the Base of the Pyramid (BoP). Companies are able to vastly increase their reach, reduce operating costs and improve efficiency by integrating ICT into their operations.

Across sectors and regions, companies are developing models that use mobile and other information technology to improve the quality and accessibility of essential goods and services to low-income consumers.

Challenge

Companies are using ICT in their business models to address the critical challenges of both access to essential goods and services and affordability for BoP consumers. While the penetration rate of ICT, particularly mobiles, has risen in the developing world and is now comparable to the developed world, access to basic services continues to remain woefully short. Figure 1 from GSMA's 2013 Scaling Mobile for Development report¹ illustrates this point. If mobile can be used to boost access to finance, energy, and sanitation by overcoming some of the many problems of reach to BOP consumers, this gap can close.

Figure 1. Comparison of access to basic services



Two of the reasons for this gap in access to services can be tackled by ICT:

Lack of infrastructure in remote or low-income areas. Due to limited and poor quality basic infrastructure and a resulting unwillingness of service providers to expand to these areas due to high costs, inhabitants lack access to critical goods and services including banks, medical experts, quality education materials and electricity. The integration of ICT can partially remove the need for physical distribution of these services allowing remote access, or can ease the payment for goods and services that have to be physically distributed.

Lack of access to information. Low-income people have little access to information about the choices that are available to them. Without information they cannot make discerning decisions on critical matters such as which drug to use and for how long. With more information available where they live, people would be able to spend less time and money on travelling long distances in search of this information. By providing information services through ICT, people can access critical information directly on their mobile phones and other devices.

From the perspective of social enterprises and innovators, reaching the BoP with basic goods and services comes with huge challenges, particularly if their aim is to be competitive and financially sustainable. ICT can help with challenges such as:

- High cost of cash payments in fragmented, dispersed markets, plus high risk of lost cash
- Need for micro-payments to boost affordability
- High cost of transporting and situating experts in low-income settings
- Difficulty of maintaining good records of product and service quality and usage

Innovative Approaches

As technology has advanced, so have the opportunities for companies to leverage it and use it to unlock the possibilities for reach, scale and better quality service provision at the BoP. Across sectors, companies' approaches can be broken down into four broad areas that are enabled by ICT: service delivery, access to information, payments and analytics. Figure 2 summarizes these four with examples.

Figure 2. Examples of ICT enabled solutions in four key areas

Areas	Ability to enable	Examples
1. Service Delivery	ICT allows companies to improve the reach and quality of their service provision by enabling affordable remote access of good quality essential services.	<ul style="list-style-type: none"> ClickMedix's mobile application translates a clinical protocol into a series of questions on a smart phone or tablet that can be used by a semi-skilled health worker working in rural areas to gather and send information to an expert doctor in a clinic elsewhere who makes the diagnosis.² Datawind's low-cost affordable 'Aakash' tablets provide educational and internet based services to low-income people who previously had limited access to educational materials.
2. Access to Information	ICT allows companies to provide vital information services to BoP consumers.	<ul style="list-style-type: none"> n-Logue's wireless Internet kiosks in Indian villages enable quick access to information on education, healthcare, consultancy and governance.³
3. Payments	ICT solutions enable companies to provide easy and affordable payment services.	<ul style="list-style-type: none"> bKash in Bangladesh enables low-income consumers to make easy payments to businesses as well as person to person money transfers through basic mobile phones.⁴
4. Analytics	ICT allows companies to manage their supply chains and track performance of distributors to improve transparency and efficiency.	<ul style="list-style-type: none"> Pollinate Energy monitors all solar light sales made and all cash payments received by its local agents through smart-phones that they train the agents to use.⁵

1. Service Delivery

ICT solutions are enabling companies to deliver good quality, essential services to low-income consumers. This has been particularly effective in the delivery of education and healthcare.

In the health sector, ICT solutions fill the health infrastructure gap in rural areas by providing remote diagnostics, monitoring and follow-up while reducing the cost of care.⁶ ICT solutions increase the reach of centrally positioned health professionals in secondary and tertiary health centers. These professionals are able to provide healthcare in underserved areas through telemedicine and specially designed applications. MeraDoctor, a healthcare enterprise in India, connects patients in remote areas with qualified doctors for consultations. Patients send information on their medical condition over a phone messaging service to get guidance on whether they should self-treat with Over-the-Counter (OTC) remedies or go to a doctor or specialist for more tests.⁷

In education, ICT allows companies to develop e-learning products that provide a certain standard of education no matter where the learning is taking place. With the ever decreasing cost of data tablets, a number of businesses are developing affordable products that are enabling access to education over the internet for those living at the BoP. iSchool in Zambia has designed low-cost e-learning tablets that are pre-loaded with courses that teach the entire Zambian curriculum from Grades 1 to 7 in English and eight local languages. These courses are designed to develop critical thinking in children and help Zambian teachers move away from the rote learning approach of many low-income schools.⁸

ICT is being used by companies in the low-income employment sector as well to help connect those working in the informal sector to employers that provide a decent pay and work conditions. Babajob.com has developed a set of ICT solutions for job seekers in the informal sector in India that include a mobile application, SMS, web and voice-based services.⁹

2. Access to information: ICT solutions have made information readily and easily available to low-income consumers who previously had little access to it. Companies are now developing services

that provide vital information to consumers at the click of a button. Healthcare firm Sproxil is tackling the problem of counterfeit drugs in Sub-Saharan Africa through a simple SMS system. Customers can confirm that the medicine they are buying is legitimate before they leave the pharmacy by sending an identification code by free SMS and receiving an immediate response in the local language.

3. Payments: ICT is helping companies unlock payments at the BoP. These could be payments between people, payments for services and provision of credit.

Mobile money is an ICT solution that is increasing access to financial services such as money transfers, remittances and savings for low-income consumers.¹⁰ Companies that provide this solution have much further reach, lower operating costs and have much fewer customer requirements than traditional financial institutions. In South Africa, WIZZIT offers a low-cost bank account that uses mobile phones for making person-to-person payments, transfers and pre-paid purchases.¹¹

Companies outside the financial services space are partnering with these mobile money providers to make payments for other services easier for their BoP customers. This model is being used in the energy sector, in particular, to allow customers to pay for solar home systems. M-Kopa sells solar home systems to its customers in Kenya on an affordable one year mobile money payment plan through the M-Pesa payment platform.¹²

ICT is also being leveraged to generate and provide credit to low-income people. Many online micro-lending platforms have been set up in recent years that match micro-entrepreneurs without access to affordable traditional finance with small investors looking for socially beneficial investment opportunities. Investors choose where to invest their money by viewing the profiles of entrepreneurs on a website. The money is deposited online and disbursed to the entrepreneur as a loan that is paid back over time.¹³

4. Analytics: Transparency and efficiency of service delivery is critical when catering to people living at the BoP. Since the final point of delivery is often in remote areas, managing supply chains and tracking performance of distributors can be difficult and expensive. Companies are developing ICT solutions to gather these important analytics to streamline processes and ensure efficiency. In Sub-Saharan Africa where stock-outs of crucial medicines are a persistent problem, a public-private partnership in Tanzania called SMS for Life has developed a solution for monitoring the availability of drugs in remote health centers. Text messages are used to prompt healthcare staff in rural facilities to check the remaining stock of medicines each week. Health facility workers reply with an SMS to a toll-free number, and are rewarded with free airtime for their responses to weekly stock requests. This information is stored in a central database. The district management team can monitor stock levels remotely and in real-time via the Internet, smart phone or e-mail and re-distribute existing medicines or schedule new drug deliveries when and where they are needed.¹⁴

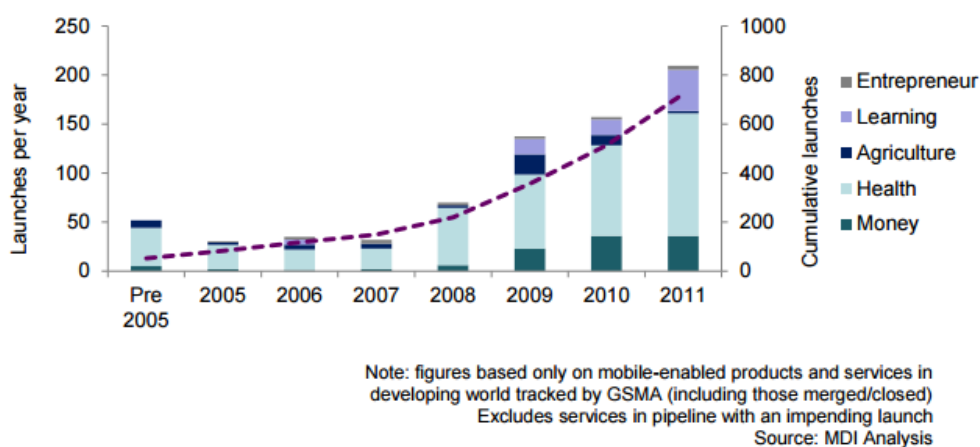
The ubiquity of mobile phones is also allowing companies to access survey and feedback data about their target consumers like never before. NGO Text to Change provides market research services to organizations seeking to improve their social impact. Text to Change conducts surveys with low-income consumers using a mobile phone platform that encourages people to register for the free SMS survey in return for mobile airtime.

Progress

With rapid global penetration and constant development of new and affordable technologies, the ICT sector has provided the ideal platform for companies and innovators seeking to improve their impact at the BoP. The mobile for development (M4D) space has made rapid progress in recent years. In 2013, GSMA reported that over 1,300 M4D programs were being run by 600

organizations.¹⁵ The healthcare sector accounts for a majority of the ICT-enabled business models although other sectors have been catching up, with financial services leading the way.

Figure 3. Timeline of M4D launches across sectors in the developing world



mHealth solutions continue to increase their impact. Many pilot projects have been successful and been converted into a regular part of health interventions. MeraDoctor has provided 50,000 consultations via its messaging service which has provided over 16 million verifications on prescription drugs. Mobile money models, however, have enjoyed the most rapid scale with the number of mobile money accounts at 103 million and the number of mobile money outlets at 2.3 million in December 2014. Twenty one services have more than one million active accounts (usage at least once every 90 days) with five of these services reporting more than five million active accounts.¹⁶ M-Pesa has one of the highest subscriber bases with 15 million registered users in 2013.¹⁷

An early dependence on donor driven models in this space is now being replaced by both end user and B2B revenue models.¹⁸ This could be a reflection of consumer driven business models in various sectors (e.g. mobile money), but also likely due to a greater awareness amongst organizations that financially sustainable business models are a key factor in increasing scale and maximizing impact for development.

Drivers and Constraints for Growth and Scale

Despite rapid progress, ICT is not a panacea. Many ICT enabled businesses are still young and are yet to prove viability. Moreover, growth has been uneven and has been sector or region specific. **Regulation** has been a key factor in this uneven growth. The M-Pesa example illustrates this point well. When the M-Pesa mobile money service was launched in Kenya in 2007, there was little regulation in this field. The company was able to grow rapidly thanks to a local government that was receptive to innovation. When the same service expanded to India, it faced many more regulatory barriers and as a result the growth trajectory has been slow.¹⁹

Resistance from traditional business models that are threatened by ICT enabled models providing more affordable and better quality services is another constraint. Mobile money services have to compete with traditional banks that have a stronger government lobby in many countries.

Finally, it is important to recognize that ICT models can't replace **investment in physical infrastructure**. ICT solutions can provide information on prices and markets but if decent quality roads and transportation don't exist to transport goods then the impact remains limited.

The key driver of this model is the growth of **ICT penetration at the BoP**. The International Telecommunications Union estimated that the number of mobile subscriptions in the world hit the 7 billion mark in early 2014, with mobile penetration in the developing world reaching 89% by the end of 2013²⁰. It also predicted that the number of internet users globally reached almost 3 billion by the end of 2014, two thirds of these being from the developing world.

Public and private investment in ICT infrastructure has allowed steady growth in recent years. The World Bank Group has been hugely successful in fostering private investment in mobile telecommunications, attracting an estimated US\$30 billion in private investment for mobile network infrastructure in International Development Association (IDA) countries.²¹ Governments are also making significant investments in infrastructure to support ICT services. For example, in 2011, three submarine data cables were installed off the coast of Africa quadrupling mobile data speeds and cutting prices by 90 percent in connected countries.²²

Constant innovation in technology and the emergence of **cross-industry partnerships** have been key success factors for ICT-led development. Partnerships between mobile money platforms and companies in other sectors to enable affordable payments have unlocked growth in key areas such as off-grid energy.

Roles and Implications for Government

Governments play a key role in promoting the use of ICT solutions for development challenges by companies. While the innovation comes from the private sector, policy makers provide the infrastructure and enablers for growth.

The World Bank's 2012 ICT Strategy discusses strategies that governments can adopt to spur growth.²³ These include:

1. **Catalyzing private sector investment in ICT infrastructure.** Public financing is needed to catalyze private investment in national infrastructure, cross-border links, and international submarine cables. In countries where private investment is insufficient, governments need to allocate public funds to support Public Private Partnerships (PPPs) aimed at catalyzing further private investment. Since private investment is often forthcoming for ICT projects, actual infrastructure costs are relatively low and PPPs usually only require a fraction of the investment needed for other infrastructure sectors.
2. **Taking an active role in enhancing competitiveness of IT-based service industries.** In countries with thriving IT-based industries, the government has taken a leading role in promoting the use of ICT. This is done by ensuring the right infrastructure is in place, establishing IT parks, improving awareness etc. Commitment from those in the top tier of government can lead to the rapid implementation of policies and efficient delivery.
3. **Promoting a skilled workforce.** The public sector needs to work closely with the private sector to promote a workforce that has appropriate IT skills. Human capital is a critical component in developing an IT industry and establishing a culture of ICT entrepreneurship.
4. **Providing incentives.** Apart from benefiting the BoP directly, ICT solutions help enterprises reduce their operating costs, improve internal management and increase access to new innovations and information. Governments can put favorable license and taxation policies in place to encourage uptake of ICT by businesses.
5. **Developing a holistic innovation policy.** Policies should be developed that strengthen the coordination and collaboration among key stakeholders including technology firms, SMEs, and end-users. Development strategies should support piloting and prototyping of new technologies across the value chain, promote and support cross-cutting technologies and their inclusion in projects for key sectors.
6. **Calibrating their interventions.** The M-Pesa example discussed above demonstrates the need for governments to understand where intervention can facilitate or stifle innovation. M-Pesa thrived due to light government intervention in India but was hindered due to heavy-handed

regulation in India. The cross-sectoral nature of these innovations means that regulation in one sector can have unintended and significant effects on innovation. Rather than direct regulation, governments can enable innovation through measures such as up-skilling the workforce and promoting entrepreneurship.

Examples of Government-led ICT initiatives

Colombia's 'Vive Digital' strategy, launched in 2010, has been highly successful in increasing internet access for its citizens, particularly those living at the BoP. This has been achieved through favorable policies that have encouraged private sector players to enter this space. These policies include the elimination of sales taxes and other duties on computers as well as the provision of subsidies to lower income people that cover part of a monthly internet plan or part of the purchase value of a computer. Four years after 'Vive Digital' was implemented, the number of broadband connections had increased from 3.1 million connections to 9.9 million and internet penetration for small and medium enterprises went from 7 percent to more than 60 percent.

The Government of India's 'Digital India' initiative, announced in 2014, is a good example of policy makers recognizing the transformative potential of ICT. As part of the initiative, the government will spend more than US\$150 billion in the next five years to bring internet connectivity to all citizens. The plan will integrate a number of ICT initiatives including the national broadband plan to connect 250,000 villages by the end of 2016, a plan to ensure universal access to mobile phones and the creation of skills development centers that will produce a workforce for the electronics sector.

Endnotes

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