



Table of contents

The growth story of ICT 2

The nexus between ICT and development 2

Examples of ICT-enabled solutions 3

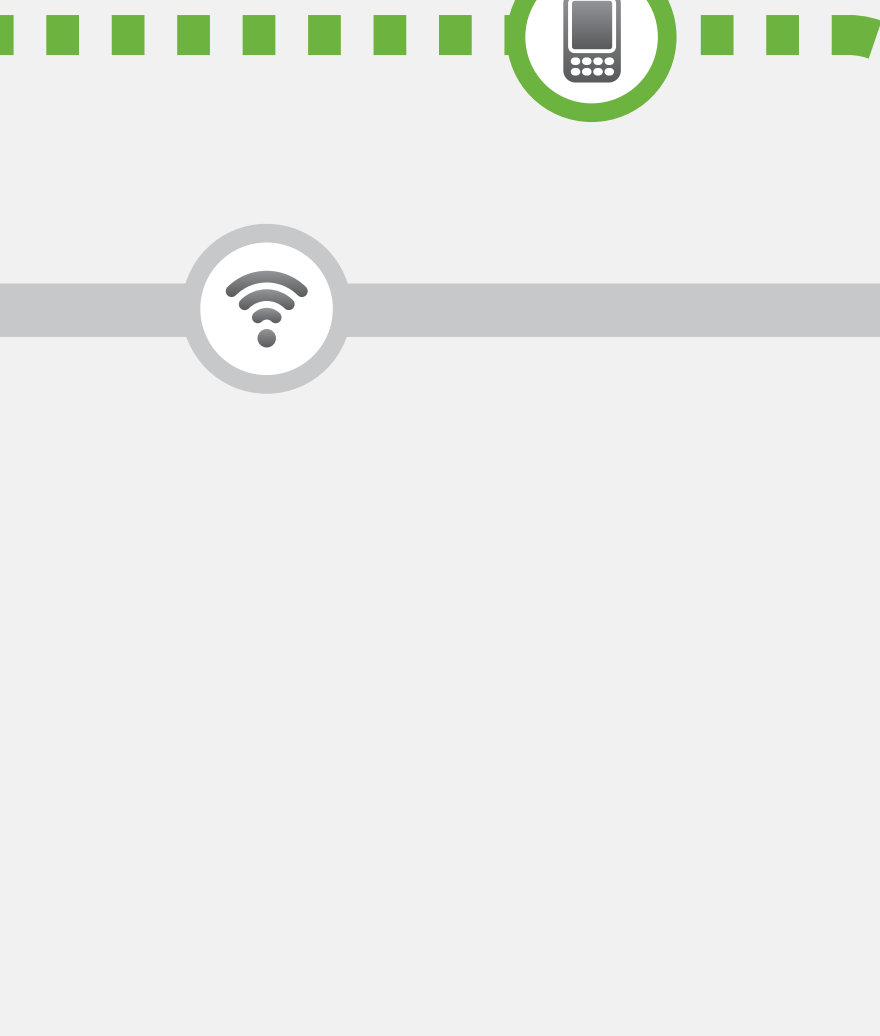


Benefits and lessons learned 10

WBCSD Technology Enablers Initiative 11



Notes and references 12



The growth story of ICT

Not long ago access to information and communication technology (ICT) was the privilege of a small minority of the world's population. ICT has undoubtedly transformed the way we live in the developed world: computers are now found on every office desk, and high-speed internet and mobile phones have changed the way in which we communicate, work, shop, and socialize.

Since the turn of the century, ICT has transformed the developing world, too. Whilst in 2000 more than half of mobile phone users were in the developed world, the balance started shifting around 2005, and in 2011 about three in four users were based in the developing world (see [Figure 1](#)). Today, the largest mobile phone company (by number of subscribers) is China Mobile, with over 600 million customers.

However, not all technologies and services have developed at the same pace. Fixed-line telephony and broadband internet subscriptions, for example, have evolved more slowly than mobile phone use in developing countries (see [Figure 2](#)). Some concerns have also been raised that the poorest countries may be left behind and that a "digital divide" may be growing. Yet the latest figures from Africa, the world's poorest continent, are encouraging, in particular with regard to mobile phone connections, which reached over 620 million as of September 2011¹.

This is an important sign, as investment and innovation to boost mobile penetration have an impact on economic growth. For instance, Indian states with 10% higher mobile phone penetration see annual growth rates of 1.2% higher than states with a lower mobile phone density².

Many factors are driving the rapid diffusion of ICT in emerging countries: the appetite of consumers, constant innovation in the industry, increasing availability of networks, and decreasing costs of hardware and software. In fact, prices for ICT services worldwide are falling while services are growing, though at different rates: fixed broadband services showed the largest price decline (42% between 2008 and 2009), followed by mobile cellular services (25%)⁴. That being said, people in developing countries still have to spend relatively more of their income (17.5%) on ICT services than people in developed countries (1.5%)⁵.

The nexus between ICT and development

ICT can expand the breadth and depth of economic activity in developing economies and improve the delivery of a range of essential public services. Governments of developing countries are therefore making significant investments in the infrastructure supporting ICT services. For instance, three submarine data cables have been installed off the coast of Africa in 2011, a huge investment that has quadrupled mobile data speeds and cut prices by 90% in connected countries⁶. For its part, Kenya aims to accelerate socio-economic development by becoming a global ICT hub⁷.

In some cases, ICT can help developing countries "leapfrog" traditional development stages. For example, the spread of mobile phones has allowed developing countries to rapidly build a modern communication infrastructure without the need to install vast grids of fixed phone lines.

Investment in ICT alone is not enough, though. While there is a strong link between access to ICT and development, it is not a panacea, but rather a powerful tool to tackle development

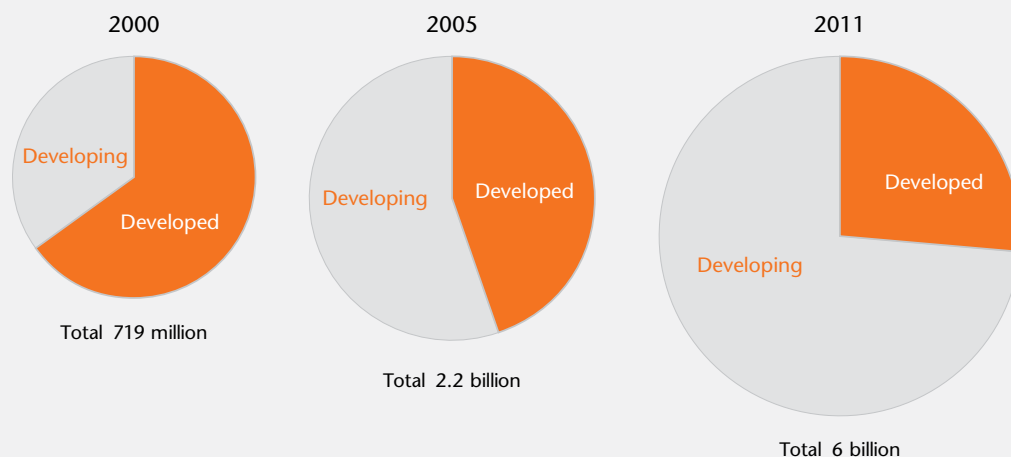


Figure 1
Mobile-cellular subscriptions, by level of development

challenges. Both access to ICT and the way in which technology is used have an impact on development. Solutions must be adapted to the local context and support services available. For instance, providing computers to schools in remote areas does not necessarily foster education. Success depends on a broader set of factors including reliable and affordable electricity power, maintenance support, and teachers⁸.

Examples of ICT-enabled solutions

Market experience shows that access to technology drives private sector activity and innovation by local entrepreneurs and SMEs. In turn, this opens up new market opportunities and helps to better fulfill the daily needs of customers. Moreover, technology increases the potential for larger companies to connect with the poor by increasing the scale and profitability of their investment. This creates opportunities not just for large technology service providers, but also for companies in other sectors that serve the poor as consumers, engage low-income entrepreneurs in their supply chains, or work with governments or other institutions to deliver key public goods and services.

For companies seeking to implement ICT-enabled ventures, the key challenge they face is oftentimes not in the technology in itself, but in finding the appropriate commercial model, and ensuring that all participants derive some value. This includes weighing the costs and benefits of different types of technologies, for example the use of smart phones versus more basic devices.

In the following pages, we present a number of case studies that highlight the power of ICT-enabled solutions. Many of these exemplify inclusive business models, i.e. business ventures that engage the poor on the demand side as

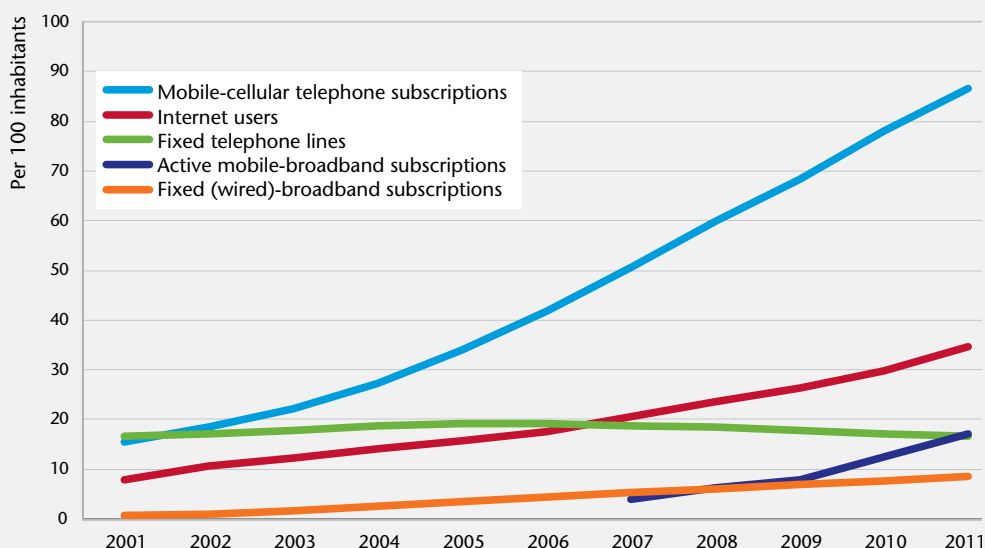
What is ICT?

Information and communication technology (ICT) is an umbrella term and consists of all technical means used to handle information and aid communication, including computer and network hardware, communication middleware as well as necessary software. In other words, it encompasses radio, television, fixed and cellular phones, computers and networks, satellite systems and so on, as well as the various services and applications associated with them. This definition informs our discussion in this report³.



clients and customers and on the supply side as employees, producers, and business owners.

Table 1 provides some examples of solutions across sectors and along the value chain. They are a mixture of commercial and more philanthropic activities using technology. The list should not be seen as exhaustive. As the sector develops further and new technologies and standards emerge, new opportunities to leverage technology will become available.



* estimate.

Figure 2
Global ICT development,
2001-2011

Table 1: Some examples of ICT-enabled solutions across sectors and along the value chain

	Agriculture	Food	Health	
				
Remote data collection	Seed distribution, crop levels	Food availability	Patient data, medical supply inventory	
Education & awareness raising	Access to market prices, weather	Customer information	Medical reminders	
Communication and training (two-way dialogue)	Field agents capacity	Coordination of distribution network	Health worker capacity	
Analysis and reporting	Crop levels	Hunger and malnutrition analysis	Patient compliance analysis	
Tracking (geographic information)	GPS data, plant diseases		Human diseases, medicine delivery	
Remote services, incl. last mile and security of information	Automatic detection of plant diseases, irrigation need	Supply chain management, tracking food vouchers	Patient diagnostic	



	Emergency response	Water and energy	Banking and insurance	Education	Government services & crowdvoicing
					
	Impact resulting from emergency	Water quality, tree planting	Market analysis		Criminal intelligence data, population surveys and ID
	Arrival of emergency supplies	Population alerts	Customer information	Availability and usage of online educational materials	Awareness of local events/issues
	Alert and coordination systems, online bulletin boards	Customer service	Customized ATM machines	Teacher training, online educational communities	Election participation/ results
	Threat- and risk-mapping analysis	Sustainability analysis	Mobile portfolio management		Security monitoring, trends analysis
	Disaster assessments, supply chain management	Geospatial mapping of water sources	Geo-marketing		Peace incidents, security monitoring
	Family reunification, job opportunities, fundraising	Metering	Mobile banking and payments		e-government, m-government

Source: Accenture Development Partnerships (2011)

ITC's farmer empowerment program in India

Building a more efficient supply chain leveraging the internet

ITC is one of India's leading private companies, with annual revenues of USD 7 billion and 29,000 employees. It is active in fast moving consumer goods, hotels, paper and packaging, agribusiness, and information technology. In India, more than 50% of the population work in the agricultural sector, which accounts for 14% of the country's Gross Domestic Product. The sector is relatively underperforming with fragmented farms, inefficient practices, and poor infrastructure undermining quality and keeping costs high. ITC's e-Choupal program – run by ITC's Agri Business Division – has setup internet access kiosks in rural areas to enable farmers to retrieve marketing and agricultural information. This in turn helps them take better decisions and potentially increase their income by better aligning farm output to market demands.

ITC e-Choupal builds on three elements: an internet-enabled computer located at a "focal point farmer," an internet connection via phone lines or a very-small aperture terminal (VSAT), and dedicated services through the echoupal.com portal. Each internet connection serves 10 villages in a 5km radius, reaching 600 farmers on average. The portal provides a secure platform using IDs and passwords. Farmers can access information on farming

best practices, market prices home and abroad, weather forecasts, news, and a Q&A section which enables interaction with ITC's agricultural experts. This digital network is backed by ITC's large scale agri extension services in farm practices, watershed development as well as non-farm rural livelihood programs such as livestock development.

In addition to providing farmers with access to more accurate market information, the portal enables them to manage risks, such as soil contamination or salinity, through access to technical information. This creates a direct marketing channel for farmers, reducing their transaction costs and improving logistics. Finally, it provides the link to Choupal Saagars, integrated rural service centers serving 40 e-Choupals each, where farmers can bring their farm produce to sell, and buy seeds, fertilizer, farming supplies, and consumer goods.

Each ITC e-Choupal requires between USD 3,000 and USD 6,000 to be set up and approximately USD 100 per year to be maintained. The system is free for farmers to use but the "focal point farmer" incurs operating costs and has an obligation to serve the entire community. In turn, the host farmer benefits from the prestige of the role

and receives a commission for transactions through the ITC e-Choupal. .

The ITC e-Choupals not only serve as a social gathering place facilitating information exchange, but also as an e-commerce hub collecting village orders, hence cutting down transaction fees from intermediaries when buying or selling goods and reducing logistics costs. Started as a project to re-engineer the procurement process for agricultural products and raise farmer incomes, the initiative has become a highly profitable distribution and product design channel tailored to the needs of rural India.

Over the last 12 years, ITC has set up about 6,500 access points, benefitting 4 million farmers. The continuing innovation in ITC e-Choupal in its version 3.0 is expected to benefit more than 10 million farmers through integrated use of mobile phones for more personalized services. ITC is also partnering with banks to offer farmers access to credit, insurance and other services. Furthermore, farmers are beginning to suggest – and in some cases, demand – that ITC supply new products or services or offer additional crops, such as onions and potatoes. Farmers are thus becoming a partner in product innovation for ITC.

mKrishi

Created by Tata Consultancy Services in 2009, this customizable mobile agro advisory system service provides information on weather, soil conditions, fertilizer and pesticides, grain prices and other agriculture-related advice to farmers in India in local languages. Today, the fee-based service allows for growing profits for 10,000 farmers through 12 projects across India.

Nokia Life

Initiative launched in 2008 to address information gaps, delivering targeted services for healthcare, agriculture, entertainment, and education information via low-cost SMS. Over 40 million people have experienced Nokia Life.

Drishtee

Social enterprise developing and implementing a rural supply chain network in rural India. Drishtee establishes kiosks that offer affordable internet access, consumer products and community services to rural villages. Local entrepreneurs manage these kiosks. The network has more than 14,000 entrepreneurs registered to date and kiosks operating in three states.

Similar examples

N.logue

Gives information and communication access to people in rural areas of India by installing kiosks with a wireless internet connection. N-Logue hosts a number of applications that enable quick access to education, healthcare, consultancy and e-governance.

E-connecting

Established in 2008 to offer a technological and communications platform that allows users to exchange data, money, and information at a low cost through a.o. mobile and conventional phones, the Internet, and automatic teller machines. This enables companies, financial and public entities, and low-income producers and consumers to increase their productivity and competitiveness.

Safaricom's M-PESA mobile money service

Enabling financial transactions for consumers and businesses

Vodafone is one of the world's leading mobile communications companies by revenue (USD 71.6 billion in 2011), reaching out to some 390 million customers. Safaricom is Vodafone's local affiliate in Kenya. It has approximately 12 million customers and revenues of USD 1.1 billion per year.

In 2007, Safaricom launched M-PESA, an SMS-based money transfer system that allows customers to transfer and make payments using a mobile phone. This has transformed financial services by making transactions cheaper, faster and more secure. The initial pilot, involving some 500 customers, was done in partnership with the UK Department for International Development, which provided matching funds, the Commercial Bank of Africa, and Faulu, a local microfinance organization. Since 2007, the system has expanded to Afghanistan, India, South Africa, Tanzania, Qatar and Fiji, reaching over 30 million customers to date.

In order to use the mobile banking service, customers first need to create an account by simply registering with their ID at any M-PESA outlet. Users can transfer funds to other users or to sellers of goods and services by sending text messages. They can also redeem their balance.

M-PESA finances itself through user fees. When users deposit cash into their accounts, they get credited with "e-floats," the electronic equivalent of local currency. Depositing money does not incur fees, but users pay whenever they make a transaction: when they send money, or when they make a withdrawal. Fees are on a sliding scale – withdrawing USD 100 costs USD 1 fee for example.

The system is quickly adapting to the needs of local customers. For instance, in Afghanistan, it includes an interactive voice system for users who cannot read while in Kenya, it has been expanded to international money transfers. In Kenya,

Safaricom has also partnered with Equity Bank to develop an interest-bearing savings account on mobile phones, enabling customers access to microsavings, microinsurance, and other banking services.

M-PESA has reduced the barriers to financial transactions for consumers and businesses alike. In the past, those without bank accounts could seldom transfer funds cost-effectively or quickly. Instead, people usually paid in cash, often had to travel long distances to make payments, with the risk of losing money or getting it stolen. M-PESA has made paying, receiving, or storing money much easier for individuals. Businesses are benefiting from its positive impact on cash flow, as many have adopted now adopted M-PESA to offer B2B services. For example, suppliers are now able to collect payments from distributors via M-PESA.

Similar examples

ANZ Wing mobile banking

Australia and New Zealand Banking Group Limited (ANZ) Wing provides mobile banking services in Cambodia, enabling rural communities to save, make payments, or transfer money securely and quickly. It has attracted some 350,000 customers. In late 2011, ANZ sold the Wing company to Inter Logistics, parent company of the Mobile Refresh payments business.

WIZZIT mobile banking

WIZZIT offers over 5 million customers across a handful of African countries a low-cost bank account that uses mobile phones for making person-to-person payments, transfers and pre-paid purchases, and a Maestro debit card for making payments in the formal retail environment. The South African company employs a few thousand "Wizzkids" – unemployed people from low-income communities – to promote the product and help unbanked customers open accounts.

Standard Bank inclusive banking

Standard Bank has developed a mobile money account for low-income earners in South Africa. It builds on mobile phone technology and a partnership between the bank and informal retailers (commonly known as spaza shops) in townships and rural areas. There is no monthly fee for the account, no fee for deposits, and a 1% fee for withdrawals. The bank's revenue stream comes from small charges on transfers. Standard Bank is signing up some 45,000 new clients each month through its network of thousands of bank shops, and aims to offer lending and savings products in the future.

Telefónica mobile banking

In early 2011, Telefónica and MasterCard launched a joint venture to implement mobile banking across the 12 Latin American countries where Telefónica operates its Movistar mobile network. The venture provides customers with mobile payment services linked to a mobile wallet or prepaid account. Services include money transfers, bill payment, and retail purchases.

SMS for Life

Improving the reliability of malaria prevention and treatment systems

Malaria continues to be a significant health problem, especially in sub-Saharan Africa: more than 216 million people are infected per year and about 655,000 die from it, mostly children under five and pregnant women.

Effective medicines to treat the disease exist. For instance, Novartis, a multinational healthcare company, delivers its antimalarial artemisinin-based combination therapy (ACT) Coartem® without profit to the public sector. Since 2001, the company has provided 500 million treatments, impacting more than one million lives.

A key challenge in the fight against malaria is to ensure that medicines reach those who most need them: patients living in remote rural areas with poor access to health services. Stock-outs of medicines at the health facility level are a big and persistent problem in many sub-Saharan countries. Once medicines arrive in the country and enter the supply chain, there is little or no visibility on what happens with them. This makes it extremely difficult to manage the supply chain and to anticipate stock-outs. Using short messaging service (SMS) and mobile mapping technology, a public private partnership called "SMS for Life" between Novartis, IBM, Vodafone, the Roll Back Malaria Partnership, and the Ministry

of Health and Social Welfare of Tanzania developed and piloted a solution to this problem. This has now been rolled out countrywide in Tanzania to all 5,097 health facilities with support from Medicines for Malaria Venture and the Swiss Agency for Development and Cooperation.

A 21-week pilot study was undertaken during 2009-2010 in three districts, involving 129 health facilities and covering a population of 1.2 million people. It confirmed the effectiveness of the approach in reducing stock-outs for ACTs. Stock data was provided in 95% of cases, and data was very accurate, with an error rate of 7.5%, most of which were corrected. At the start of the pilot project, 25% of all health facilities did not have any ACTs in stock, but by the end, 95% had at least one ACT dosage form in stock. Furthermore, at the end of the pilot, 300,000 more people had access to ACTs than at the beginning of the study.

SMS for Life simplifies the process of monitoring the availability of drugs in remote health centers. Vodafone and Greenmash, a UK-based company, are two technology suppliers that provide systems that use SMS 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, a smart phone or e-mail and re-distribute existing medicines or schedule new drug deliveries when and where they are needed.

The SMS for Life process, supported by a technology platform from Greenmash, is also now being piloted in Ghana and Kenya, and has expanded beyond malaria medicines, enabling the monitoring of rapid diagnostics tests, bed nets, antibiotics, leprosy and tuberculosis drug. In addition, the system is being used in Kenya to collect weekly surveillance data on the total number of patients, total tested, total positive and total treated. Authors of a recent article published in the *Malaria Journal* commented on the potential power of the Kenya implementation: "It is hoped that in the era of imperfect drug supply the package of interventions, including intense monitoring with high visibility at all levels of care and adequate local responses, may be sufficient to enable Kenya to eliminate stock-outs and achieve 2013 targets of universal and continuous availability." (Sudoj et al. *Malaria Journal* 2012)

Similar examples

Dimagi Comcare

Dimagi Comcare is an open source mobile application that helps community health workers store and access patient information and monitor at-risk patients with simple-to-use registration forms, surveillance questions and health prompts. It helps community health programs bring basic levels of care to areas that lack access to health clinics or hospitals.

SMS for Health

Together with Pfizer and NGO International Health Partners, Vodafone has designed and managed a seven-month commercial pilot to monitor disease rates, the top ten health events, and drug stocks and expiry dates for over twenty medicines in The Gambia. SMS for Life is now run as an ongoing project.

Voxiva

Voxiva has launched almost 150 health-related text-message services around the world, mainly in developing countries where access to doctors is scarce. Such projects have often been used to disseminate information about treating diseases such as diabetes or AIDS. Voxiva has operated mobile health campaigns in Latin America, Africa and India on obesity, smoking and diabetes care.

mPedigree

mPedigree is a mobile-based verification platform, sponsored by pharmaceutical companies, that allows consumers to verify the authenticity of drugs in real-time at the point of purchase. It enables the fight against counterfeits and potentially lethal products.

Additional examples of ICT-enabled solutions for the developing world



web-based



mobile-based



web and online



other ict



Refugee United

Offers a safe, secure, and anonymous way to find family and friends a client has lost contact with.



APOnline

Web portal in India's Andhra Pradesh state offering multiple government services to citizens through a single window.



Exxon Mobil e-procurement

Works to improve local business and operating performance in Chad by enabling local SMEs to access procurement opportunities with large companies through a transparent system for local contracting.



Agriculture Index Insurance

The program by the Syngenta Foundation in Kenya uses mobile phones and weather stations to offer smallholder farmers affordable insurance against drought and excess rain. Farmers receive payouts via Safaricom's M-PESA mobile money service (see case study page 7).



Fisher Friend

Provides time-sensitive information about weather conditions, tides, and market conditions to fishers in India's Tamil Nadu state.



Reuters Market Light

Provides farmers with customized, localized and personalized information (weather, prices, news, etc.) on mobile phones.



Esoko

Has developed a software platform, managed over the web and delivered via mobile phones that facilitates the flow of agricultural market information between farmers, traders, agribusiness, cooperatives, governments, etc.



Pesinet

Provides affordable healthcare services to help prevent, detect and treat diseases through the periodic and cost-efficient monitoring of key health data.



FINO – Financial Inclusion Network and Operations Ltd

FINO serves some 28 million customers, providing them with access to pension and government scheme benefits, savings accounts, loans, remittance capacity, and health and disability insurance.



Ushahidi

Develops free open source software for information collection, visualization and interactive mapping, allowing crowd-voicing and large-scale dissemination of information.



Samasource

Nonprofit enterprise outsourcing non-core/ administrative tasks from organizations in the developed world to workers in Africa, Asia and the Caribbean via the internet.



Movirtu

Uses cloud infrastructure to link a mobile identity to a user rather than a device, allowing low-income customers to access their mobile information from any shared device.



Remote Medical Diagnostic (ReMeDi™)

Provides, at affordable cost, portable diagnostic kits that can be installed anywhere with internet connectivity and relay information from rural settings in India to city hospital doctors who can access medical parameters through a video link, make a diagnosis, and prescribe appropriate treatment.



Grundfos LIFELINK

Provides people in low-income communities with access to safe drinking water and other infrastructural platforms, using a mobile-based billing system.



Tarahaat

Commercially-viable model using the internet to bring relevant information, products and services to unserved rural markets in India.

Benefits and lessons learned

As the case study examples demonstrate, ICT-enabled services deliver a wide range of benefits for low-income communities, local businesses, and large companies alike. The table below provides a short overview and examples of these benefits, which are described in more detail further below.

Types of benefits		Low-income communities	Local businesses	Large (investing) companies
	Better, faster and easier access to information	e.g., drug counterfeit check, job search	e.g., market prices and weather forecasts	e.g., inventory level
	Improved interaction and two-way communication	e.g., connecting with family	e.g., placing and following orders	e.g., real-time stock monitoring
	Cost efficiency and lower transaction costs	e.g., mobile banking	e.g., aggregating orders	e.g., supply chain management
	Automation and standardization	e.g., reduced corruption through automated services	e.g., consistency in quality of offering	e.g., automatic order replenishment
	Economic and other opportunities	e.g., job creation	e.g., localized applications	e.g., access to micropayment platforms, new markets

- **Better, faster and easier access to information:** ICT can be a tool in identifying potential buyers/sellers, market prices, or employment opportunities. It can also help users learn about the status of friends and family, for example after a natural disaster. Furthermore, ICT can be used to validate information by making it easier to check multiple sources.
 - **Improved interaction and two-way communication:** The internet and mobile phones enable rapid and secure two-way communication among users, which is most valuable in the area of telemedicine or in the aftermath of natural disasters.
 - **Cost efficiency and lower transaction costs:** ICT provides potential for cost savings and efficiency gains, thereby enabling better access to goods and services. It can cut out middlemen, such as in mobile banking, or bring a fragmented network of customers or suppliers together, improving the management of supply chains.
 - **Automation and standardization:** ICT relies widely on automation and standardization, which increase the quality of services, as they ensure tasks are consistently performed, following a standard process. Financial transactions through a mobile phone, for example, can be more reliable than hand-to-hand transactions, which sometimes involve middlemen, and safer than carrying cash, which are the usual alternatives for people outside the traditional banking system.
 - **Economic opportunities:** The increased expansion and sophistication of ICT infrastructure enables the development of a growing number of ICT services, including localized applications.
 - **Improving data visibility or transparency:** ICT enables data to be accessible and visible to the greater majority of citizens, including low-income groups.
- To date, lessons from the implementation of ICT-enabled ventures point to a number of factors that often still need to be addressed to further increase the benefits:
- **Infrastructure:** ICT cannot replace investment in other types of infrastructure, and in some cases it is less effective without it. For example, ICT can be used to access more accurate price information, but goods cannot be transported to market without a functioning road system.
 - **Legislation and public policy:** Regulatory frameworks can play a significant role in supporting ICT as a development tool and in fostering innovation, for example by encouraging a competitive telecommunication environment or by incentivizing convergence of services toward a single network. Appropriate license prices and taxation levels are also important factors to foster investment and rapid spread of ICT networks.
 - **Inertia and resistance from traditional models:** It is important for other industry sectors to familiarize themselves with examples of business opportunities that can be developed by leveraging technology in emerging markets. At the same time, new technologies and business models often threaten incumbents in the market by providing better value or even making existing solutions redundant. Mobile money services, for instance, compete with traditional financial services offered by the banking sector.

- **User interfaces:** If users are not able to use ICT at a level that allows them to benefit from it, its impact on development will be undermined. Examples of solutions addressing this challenge include voice-based systems and iconic user interfaces.

Apart from removing existing obstacles, collaboration between stakeholders will be key to transforming opportunities into success stories. As the examples of M-PESA or SMS for Life illustrate, partnerships between private and public actors are often the catalysts for the initial co-investments in a long-term sustainable model.

It will be interesting to observe where the pattern of technological diffusion may reverse, with innovations developed in or for emerging markets and being then transferred to other, sometimes wealthier, markets. Basic mobile phones, laptops, tablets, and even portable electrocardiographs are increasingly being upgraded and repackaged as low-cost products for consumers in more affluent countries, where they turn out to meet significant demand. This is the so-called “reverse innovation” process⁹.

WBCSD Technology Enablers Initiative

In early 2011, the World Business Council for Sustainable Development (WBCSD) launched a Technology Enablers Initiative under the leadership of Vodafone. Over the course of 2011, the initiative provided a platform for companies from different industry sectors to explore opportunities for inclusive business models using the power of technology, in particular ICT.

The initiative facilitated a series of discussions and events with WBCSD member companies and Regional Network partner organizations, aimed at creating successful partnerships or collaborative action between member companies and other partners.

- **TNT Express** and **Vodafone** explored how mobile phones could provide geo-coded addresses and payment services to small entrepreneurs in informal settings, allowing them to send and receive goods and services in the absence of street names. This work has included over a dozen “speed-dating” discussions with WBCSD members from various sectors over the summer of 2011 to explore potential linkages and interest. In October 2011, TNT Express performed a field trip to the slum of Dharavi in Mumbai, India, and identified a number of opportunities, in particular in the area of supply chain optimization. The companies concluded that more market research and

high volumes of transactions via e-commerce are required to make a viable business case¹⁰.

- **Vodafone** and **Accenture** shared insights from their joint report titled *Connected Agriculture*¹¹, focused on how ICT can be used further to improve efficiency and sustainability in the food and agriculture value chain. The report put particular focus on potential benefits of new mobile data services such as weather forecasts, commodity market information, helpline services and mobile banking for smallholder farmers in the developing world. It puts the potential benefit at USD 138 billion for emerging market farmers, plus additional benefits stemming from using advanced mobile communications technology in food production and distribution. This includes installing simple low-cost wireless data devices within storerooms, delivery vehicles and distribution centers to enable farmers and food producers to develop detailed logistics and tracking systems. These in turn will allow farmers and producers to optimize the movement of crops and produce from farms to consumers, as well as gather detailed field data.

This document formally concludes the work advanced by the WBCSD and its member companies under the Technology Enablers Initiative. Through the work of its Development Focus Area, the WBCSD will continue to document, catalyze and advocate for ICT-enabled business solutions to sustainability challenges in the developing world.

Notes and references

1. GSMA, African Mobile Observatory 2011, <http://www.gsma.com/mobile-observatory>.
2. Vodafone. (2009). India: The Impact of Mobile Phones. The Policy Paper Series. Volume 9. Available: http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_9.pdf Last accessed 22 January 2012.
3. Wikipedia, http://en.wikipedia.org/wiki/Information_and_communications_technology, last accessed 22 January 2012.
4. International Telecommunication Union (2011). Measuring the Information Society. Available: <http://www.itu.int/ITU-D/ict/publications/idi/2011/> Last accessed 22 January 2012.
5. Ibid
6. The Economist. (2011). Digital revolution. Available: <http://www.economist.com/node/18529875> Last accessed 22 January 2012.
7. Kenya Information and Communications Technologies Board . (2009). Progress Report 2007-2009. Available: <http://www.ict.go.ke/oldsite/images/pdfs/kictb%20progress%20report%202008-2009.pdf> Last accessed 22 January 2012.
8. Kentaro Toyama. (2010). Can Technology End Poverty?. Available: <http://bostonreview.net/BR35.6/toyama.php>. Last accessed 22 January 2012
9. Jeffrey R. Immelt, Vijay Govindarajan, and Chris Trimble. (2009). How GE Is Disrupting Itself. Available: <http://hbr.org/2009/10/how-ge-is-disrupting-itself/ar/1> Last accessed 22 January 2012.
10. For an in-depth overview on this collaboration, see "Logistics Support for Slum Businesses", in Searchlight South Asia, June 20, 2012. Available at <http://urbanpoverty.intellecap.com/?p=558> Last accessed June 22, 2012.
11. Accenture and Vodafone. (2011). Connected Agriculture: The role of mobile in driving efficiency and sustainability in the food and agriculture value chain. Available: http://www.vodafone.com/content/dam/vodafone/about/sustainability/2011/pdf/connected_agriculture.pdf Last accessed 22 January 2012.

About the World Business Council for Sustainable Development (WBCSD)

The World Business Council for Sustainable Development is a CEO-led organization of forward-thinking companies that galvanizes the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and take shared action. Leveraging its strong relationships with stakeholders as the leading advocate for business, the council helps drive debate and policy change in favor of sustainable development solutions.

The WBCSD provides a forum for its 200 member companies – who represent all business sectors, all continents and a combined revenue of more than \$7 trillion – to share best practices on sustainable development issues and to develop innovative tools that change the status quo. The Council also benefits from a network of 60 national and regional business councils and partner organizations, a majority of which are based in developing countries.

www.wbcsd.org

Disclaimer

This publication is released in the name of the WBCSD. Like other WBCSD publications, it is the result of a collaborative effort by members of the secretariat and senior executives from member companies. A wide range of members reviewed drafts, thereby ensuring that the document broadly represents the perspective of the WBCSD membership. It does not mean, however, that every member company agrees with every word.

Copyright © WBCSD, August 2012

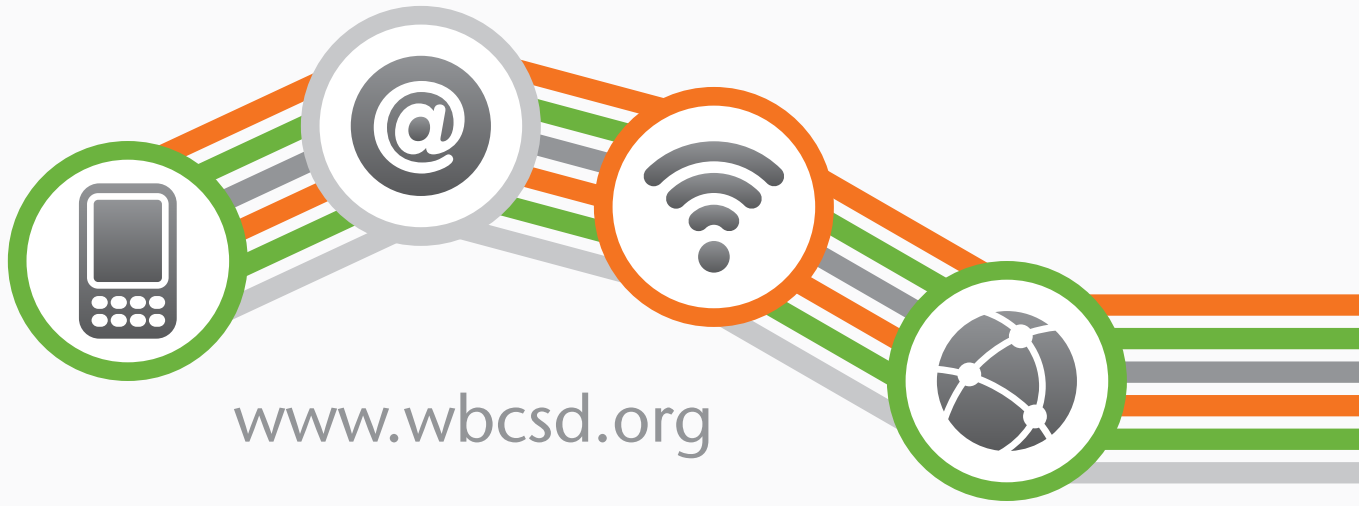
ISBN: 978-3-940388-88-9

Acknowledgements

The WBCSD would like to thank the following people for their contributions to the Technology Enablers Initiative and the preparation of this document:

Laura Crow, Vodafone
Julie Evans, Vodafone
Sacha van Ginhoven, TNT Express
Perry Heijne, TNT Express
Lionel Bodin, Accenture Development Partnerships
Justin Keeble, Accenture
Nazeeb Arif, ITC
Kirsi Sormunen, Nokia
Johanna Jokinen, Nokia
Jim Barrington, Novartis
Louise Koch, Grundfos LIFELINK
Kavita Prakash-Mani, Syngenta
Sachin Joshi, CII-ITC Centre of Excellence for Sustainable Development
Nicolas Theopold, Dalberg Global Development Advisors
Serena Guarnaschelli, Dalberg Global Development Advisors
Nicolas Chevrollier, BOP Innovation Center

The WBCSD secretariat's Development Focus Area team (Marcel Engel, Filippo Veglio, Matthew Lynch, Sophie Paul) managed the writing and publication of this document.



www.wbcd.org



World Business Council for Sustainable Development

4, chemin de Conches, CH-1231, Conches-Geneva, Switzerland, Tel: +41 (0)22 839 31 00, E-mail: info@wbcd.org

1500 K Street NW, Suite 850, Washington, DC 20005, US, Tel: +1 202 383 9505, E-mail: washington@wbcd.org

www.wbcd.org

الاستشارات

المنارة

www.manaraa.com