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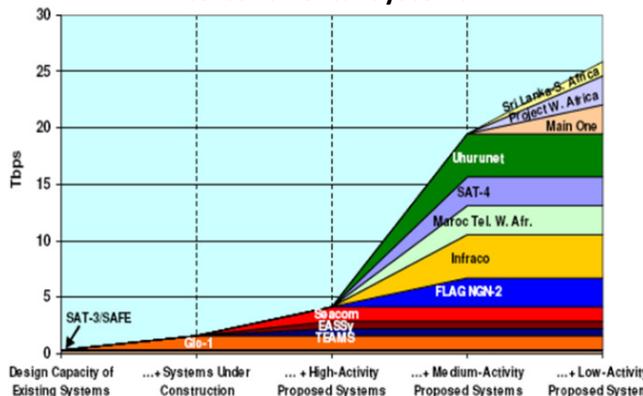
Time for African Broadband?
National Broadband Strategies in Africa[1]-
an insight by leading (Ultra) Broadband consultants since 1993

A paradigm shift for Africa

Since 2010, Sub-Saharan Africa's Information and Communication Technologies (ICT) sector witnessed an annual growth rate of 9% in retail telecoms revenue which is expected to last at least up to 2016[2]. As a result, the Sub-Saharan Africa ICT sector has become an engine of development with around US$100 billion annual revenues, representing around 7% of African GDP[3].

Indeed, the continent is now catching up with the latest telecommunication trends: its international connectivity capacities have increased through a series of **submarine cables** *(14 landing since 2000[4]; between 2008 and 2012 the capacity increased 120 times, reaching 10Tbps in 2012[5])*. Since these submarine cables are providing **faster and cheaper international connectivity,** they are about to remove dependence on satellite for international trunk Internet bandwidth. Indeed, in the last decade the price of international bandwidth has fallen from as high as US$12,500 per Mbps per month to as low as US$120 in Kenya[6] and even US$45 in Senegal[7], compared to a US$0,27 - US$6 range in developed countries[8].

Design capacity of Sub-Saharan Intercontinental Systems[9]

This has much improved African broadband international connectivity on a continent mostly relying on expensive and limited satellite capacities. Such opportunities have boosted (public) actors to roll out **national fiber backbones** connecting the main cities to the cable landing stations.

While in developed markets, the needs for information and communication have been answered by both fixed line and mobile internet, in Africa **the mobile phone has become the preeminent means for accessing the internet**. In developing markets, a 10% increase in mobile phone penetration is expected to increase the country's GDP by 4.2%[10]. Broadband and its speed are expected to generate decisive impact on GDP as well[11].

Marginal effect of a 10% increase in mobile penetration on total factor productivity [12]
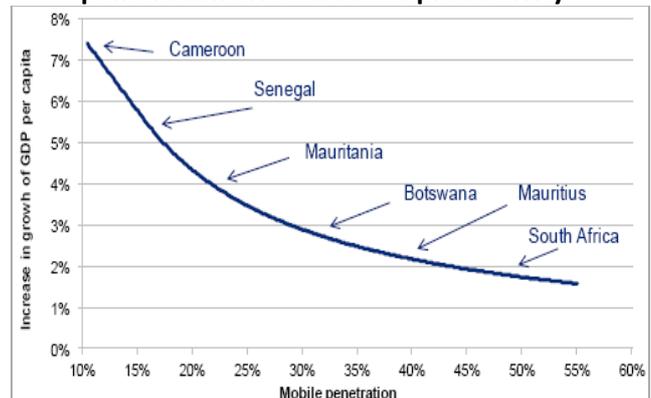
The strong growth in the use of **mobile phone "apps"** across Africa has as well allowed some impressive success stories. M-PESA[13] in Kenya, a mobile peer-to-peer payment system that had attracted 15 million subscribers within four year of its launch[14], has been one of the early success stories.

A high number of m- and e- applications have been supporting other sectors such as health, education, public service and agriculture, improving the daily life of Africans and giving them access to basic services. More than **100 mHealth applications** have been identified across Africa[15] and **50 mobile money applications** have been deployed in 26 African countries solely between 2008 and 2010[16]. This is referred to as **reversed innovation** where Africa "exports" innovation to developed countries.

A growing awareness of African governments

Most African states have been implementing dedicated ICT policies[17]. First indicator of the recognition of ICT's importance, by 2009, 41 African countries had established independent National Regulation Authorities (NRA)[18]. Further African Governments completed this evolution by undergoing reforms of their **telecom legal and regulatory framework.** The modifications incline to be quite similar across the countries since they follow best practice guidelines edited by international institutions/consultants and Regional Economic Communities (RECs). This tends to harmonize the national telecom rules and regulations, with a few notable exceptions.

Further African Governments have adopted **National Telecom or Broadband Strategies** to stimulate and develop the sector. Nowadays, out of 119 countries worldwide having a National Broadband Strategy[19], 26 African countries have adopted one and 13 strategies are underway[20].

Africa is following in European footsteps by widely adapting its policies within the telecommunication sector. Governments have several simultaneous challenges on which to take a lead:

• Accelerate infrastructure development and digital inclusion in urban and in poorer and isolated rural areas;
• Promote the development of key services for social, cultural and economic transformations;
• Strengthen existing industries and develop the ICT sector.

Meeting these objectives requires skills and resources that are often lacking, while mixing private and public sectors, business oriented and non-profit spheres as well as ensuring a coordinated integration of the NGOs'/donors' work in the field. The achievement of public policies in that context is proving cumbersome and highly complex. The issue is to highlight if African national Strategies for Broadband have integrated the return of experience of more mature markets while adapting it to the specificities of the Sub-Saharan context.

Infrastructure development

To roll out broadband for enhanced ICTs services in emerging markets; upgrading of infrastructures is paramount. The lack of infrastructure is usually the first hurdle met by African countries in developing their broadband sector[21].

Major improvements in Africa are brought about by the recent submarine cable landings. In the follow up, **national backbone rollouts** became a primary objective of governments. Hence, between July 2011 and July 2012, an additional 36,165 km of terrestrial fiber optic network has been put into service across Africa; as a result, 31.903 million more Sub-Saharan Africans now have access to the internet, and 40% of the African people is currently within reach of a fiber network.[22]

Percentage of Population close to Fiber nodes[23]

Node	Location	Year	%Population <10Km	%Population <25Km	%Population <50Km
Terrestrial Fiber Node	Sub Saharan Africa	July 2011	19%	36%	56%
Submarine cable Landing point	Sub Saharan Africa	July 2011	2%	4%	6%

To reach paramount objectives such as internet access availability for all citizens including coverage of remote areas, National Broadband Strategies usually foresee the implementation of WiMAX and wireless technologies coupled with the use of satellite.

Traditionally, all public expenditure on the telecommunications network infrastructure was channelled through a state-owned enterprise, but recent investments in backbone or other broadband networks has come from a variety of sources. State-owned operators still play a role, but electricity companies are progressively investing in fiber and other networks in order to increase the efficiency of their energy transport and distribution network assets (as seen in Kenya, Rwanda, Republic of Congo, Ivory Coast and Malawi to name a few[24]). Research findings[25] show a resurgence of state-led investment for fiber backbones. In some countries, the government is investing directly in fiber-optic infrastructure, sometimes through a public entity as in Sierra Leone where the public agency SALCAB is in charge of building and operating the networks.

In recent times, **Public Private Partnership** (PPP) has been increasingly used for the efficient development of national rollout[26]. PPP refers to any form of partnership between the Public and the Private sector to develop infrastructure, usually so as to ensure value for money for both the private and the public sector.[27] The recourse to PPP financing is considered as a best practice and has already been used in many different ways in Africa. To this day, such PPP have been introduced or planned in countries like Liberia[28], Sierra Leone and Guinea (SPV Share ownership model), Rwanda and Malawi (Bulk purchase model), Burundi (Cooperative model with the Burundi Backbone System (BBS)[29]), Gabon (O&M contract) or Congo (Concession)[30 31].

Beyond backbone or regional network (such as the Central African Backbone[32] connecting different countries in Central Africa), PPPs have proven efficient in deploying ICT infrastructure in rural regions. Kenya has set up a LTE PPP Project[33], 17 companies have expressed their interest to participate, showing the appetence of private players for such models[34]. **Open Access** regime is seen as key for the management of such crucial infrastructures, ensuring neutrality, transparency and non-discrimination towards market players, and enabling an optimal use of the resources available.

To promote the set-up of such open access infrastructures, many enhance the infrastructure with shared data processing centres. In some regions, as in South Africa, the market for data centres has taken a step ahead, but many markets remain unexploited despite the demand by local businesses. Currently, the continent has 112 data centres in 24 African countries[35], 15 of which are in South Africa. These are one of the main emerging telecommunications infrastructures on the continent alongside the IXPs.
Africa has 29 IXPs spread in 22 countries, and some 11 countries are now planning to establish one in the coming years. Yet, there is still a high disparity between African countries: 25 percent of the IXPs are currently concentred in 2 countries (South Africa and Egypt)[36]. However more and more countries wish to set up such IXP on various locations, as seen in Congo Brazzaville, a small country of 6 million inhabitants having recently inaugurated its first one and planning 3 IXPs in total!

e-gov and ICT capacity building

Broadband Strategies usually focus on developing general ICT skills as well as promoting internet use for government and other public services (referred to as e-government programs). Of course specific actions are undertaken here related to internet security, or against spam and malware, often with the support of regulators.

In an overwhelming part of Africa, the lack of "ICT literacy" remains a major obstacle for internet and broadband penetration. Therefore, there is a crucial need to develop **computer and ICT skills**, which is being addressed in various ways across the countries. To promote ownership of ICT tools, some have implemented e-inclusion policies, with a special care for rural areas or Bottom-of-the-Pyramid (BOP) population. The policies include purchasing computers for families or students (Egypt[37], Algeria[38], Kenya[39]), offering Internet services at affordable prices (Rwanda[40], Egypt[41]) or creating community access points (telecenters) to connect villages with ICTs and to offer Internet education and training for the population.

In parallel most Broadband National Strategies set up a dedicated **e-government** initiative, an action aimed at modernizing central and local government services by creating effective information networks and management systems. Paperless process is another large area of this program: governments (like Rwanda) can move beyond paper in electronic identification systems, electoral registration systems and can introduce value-added shared management tools, such as Geographic Information System, Spatial Data Infrastructures, electronic archival resources and collaborative extranets.
Some advanced countries have already implemented a government portal designed for online public services and administrative procedures at national and local levels. The aim is to improve the quality of services while reducing costs. Overall, about 15 African countries have established an e-Government portal, with mainly administrative information. Other countries have created additional interactive online services, such as job search, bill settlement, certificate and personal loan applications, driver's license or renewal of identity cards.

e-Government portals are increasingly more often accompanied by other e-initiatives to connect specific sectors such as schools (**e-education**), or health centres (**e-health**), and sometimes further programs (e-agriculture, e-commerce, etc).

Overall, these e-programs seek to increase broadband use so as to improve the quality of the services across the country: enhanced education for students, faster help in case of medical emergency, etc.

South Africa – which appears as one of the African broadband pioneer countries – for instance in 2013 decided the set-up of an ambitious project of connecting all government institutions, as well as all the 26,000 schools and 4,200 health facilities[42].

Gradually, digital inclusion is intended, not only to ensure that people have access to ICTs through computers or phones in their communities, but to ensure that it becomes a lever for improving daily life with national and local content which is relevant/ useful.

Innovation & local content

ICTs objective of National Broadband Strategies is the set-up of an environment favorable for innovation and local content. **Mobile applications,** the foremost illustration of African innovative power, range from internet banking, TV, travel reservations or financial investments, to local health surveillance, or control over electoral fraud[43].

The digital content industry and Business Process Outsourcing (BPO) implementation seem within reach of industrial-scale exploitation in African countries.

Brief overview of e-government initiatives[63]

The partnership between telecom operators, governments, private enterprises, NGOs and communities on ICT4D is significantly contributing to support innovation through creation of new services and software applications. The success of such applications is entirely due to the dynamism of ICT companies and as well an increasing pool of African developers and programmers, dedicated to the creation of new mobile applications to ease the life of mobile internet users. There are numerous development projects and applications. Each sector can be targeted: banking, agriculture, health, education and other public services sectors. The business model of innovation often relies on low bandwidth services that can be used on any handset, due to the low penetration of broadband and 3G handsets. Some applications (MzansiSMS[64], Txteagle[65]) aim at reducing telecommunications costs and promoting data exchange by providing incentives like free airtime.

Illustration of local content, Afrinolly[66] is another highly successful application. Offering short feature films, Nollywood movies or simple trailers, this free application has in less than a year become the first application in Africa (2.3 million users). Created in Nigeria, its content is now being provided by 9 different African countries and the application can be used worldwide. A recent World Bank survey even showed that out of a total of 107 countries, one third of the apps came from Africa alone, more than Europe and North America[67].

Success of mobile applications has led some governments to take action towards the promotion of broadband content innovation. The creation of the Innovation Hub in Nairobi in March 2010 was one of the first and most successful initiatives and it is widely copied[68].

e-Government Action	Countries	Type of services
eGov portals	Botswana[44] , Burkina Faso[45], Cameroon[46], Egypt[47], Rwanda[48], Senegal[49], Angola[50]	**Online Information services**
	Botswana, Tunisia[51], Egypt, Kenya[52], South Africa[53]	**Interactive On line services** Agricultural, Health, land and Education services
	Tunisia[54], Egypt[55]	**On line mobile services** Train schedules, weather forecast, Mobi Dinar payment service, University registration…
Open Data Portal	Kenya[56], Morocco[57]	Datasets in open formats, API to acces information on Site
eParliament	South Africa[58], Kenya[59]	Restitution of the whole activity of the parliament, commissions, assembly, preparation and passing laws,
National ID[60]	Kenya, Uganda (in development) Nigeria, Ethiopia, Namibia, Ghana, Morocco, Côte d'Ivoire	Resident alien card, passport, Driving license, smart card…
Administrative One Stop shops	Botswana,[61] South Africa[62]	Local and community Information, business Information, services: school registration, birth certificates, livestock tracking, passport application…

In the follow up, a number of initiatives have set up technology centers for innovation to flourish. The **iHubs** include technology platform, incubator, co-working spaces, and business clubs close to universities, thus offering the best environment possible for networking, brainstorming and innovating.

In South Africa, a Research and Development program has just been created in 2013 to encourage the development of innovative and local applications. Research institutions, universities and centers of excellence are being used to develop these broadband applications[69]. Additional African incubators and open collaboration spaces have been established: in Kenya (Nailab), Uganda (Hive Colab), Cameroon (Activspaces) and Senegal (Bantalabs)[70].

Most African Broadband Strategy include the promotion of such content and creation of apps, very often through the set-up of incubators, ICT parks, a content platform, dedicated data centers.

A slow way forward

Though Africa has taken the right turn towards broadband, the development is slow[71] and ICT still holds untapped promises. A number of highly complex and intertwined issues must be addressed by African governments.

Indeed, in preparing their National Broadband Strategies, African governments seem to follow general trends rather than showing willingness to breakthrough and innovate. Disproportioned ambitious objectives not coupled with the reality of the country often lead to long lists of measures addressed by National Broadband Strategies. There appear to be no prioritization and proper organization (to optimize and take full profit from the interactions between the different measures).

Congo Brazzaville is a good recent illustration of the complexity of such issues. Having benefitted from various World Bank programs through its UCP (project coordination unit) for the CAB (Central African Backbone) project[72], the country is currently setting up its National broadband strategy. A public presentation on its development plans released in April 2013 shows the multiplicity of issues one can address: smart metering/smart city,

alleviation of taxes, setting up of local content, regulatory recast or national broadband coverage (via wireless or satellite technologies). This illustrates the hurdles met by some African authorities to truly grasp the key issues of their African market.

Without clear objectives and priorities and a deep going understanding of their market dynamism, African Broadband Strategies might more often than not result in limited/isolated progress.

Rwanda is a pioneering example: though not having spared its effort for over a decade – through several NICI (National Information Communication Infrastructure) Plans[73]– the country still has a long way to go. As of March 2013, Internet penetration rate of the population has only reached 8%[74], including 0.025% fixed broadband subscriptions[75]; while its mobile penetration reached 59.5% of the population in May 2013[76].

Surely there is a lack of cohesion between the numerous different NICI measures undertaken in Rwanda – two parallel fiber networks (one being deployed on the EWASA High Voltage, the other being the BSC route[77]) were deployed with almost the same route.

The program of connecting some 8,000 sites seems not to have been embedded in a general infrastructure program of pooling with other networks. However a dedicated public company BSC (Broadband Systems Corporation) has been set up which aim is to manage and operate all these networks.

Indeed infrastructure related measures are key and have to be undertaken in a coherent and specific way. A transversal approach of infrastructure should be considered so as to mutualize the different networks already available (roads, pipelines energy distribution networks). This is cruelly lacking in Africa.

Additionally, in Africa the management of fiber network capacities is usually transferred to the incumbent operator. Such structure strengthens the inequalities and tends to eliminate competition, especially from small operators which disappear as seen in the case of Senegal; such behavior is also not in line with best practice regarding legal and regulatory frameworks as well as WTO/GATT agreements.

This demonstrates that African leaders misjudge both the importance of public funded essential infrastructures and the predatory effect of a dominant position on competitors. Only strict regulation by an independent telecom regulator could protect and enhance market competition in such case. The state directly involved with the incumbent may have only short-term interest to the detriment of competition, when in fact a state in a liberalized telecommunications market will (have to) take into account long-term interests that will benefit the market and the economy as a whole.

Very often as well, African governments tend to underestimate the value and the potential of the energy utilities' assets, though some countries have demonstrated the value of these, like in Kenya with KPLC's fiber assets.
Energy supply should be integrated into National broadband strategies as it represents a key hurdle for broadband development. Moreover, very few African countries are aware of the opportunities related with the utilities' networks.
This is being enhanced by the utilities' need to set up smart grid (with IP) to better control and monitor such grids. Deploying fiber on High & Medium Voltage, and using wireless or Broadband Powerline technologies have the potential to create excess capacities all over the grid.
Thus it is astonishing that so many African leaders have not yet started to facilitate the deployment of infrastructures by a) systematically using energy (or others: water) networks for broadband transmission, and b) making energy utility companies participate as neutral actor in the telecom market, as seen in so many countries worldwide.

Open Access (OA) is another best practice seen as a key feature for the efficient and competitive management of essential infrastructure, especially the ones being funded by public sources. Increasingly used in African countries, there is however a distortion between the principles aimed at (non-discrimination, transparency and neutrality), and their actual implementation. The return of experience on public funded essential infrastructures shows the need for a coherent backhauling, that is to say not solely focusing on backbone and on metropolitan networks. Backhaul and even local loop infrastructures should as well be managed under open access.

Open Access structure and principles[78]
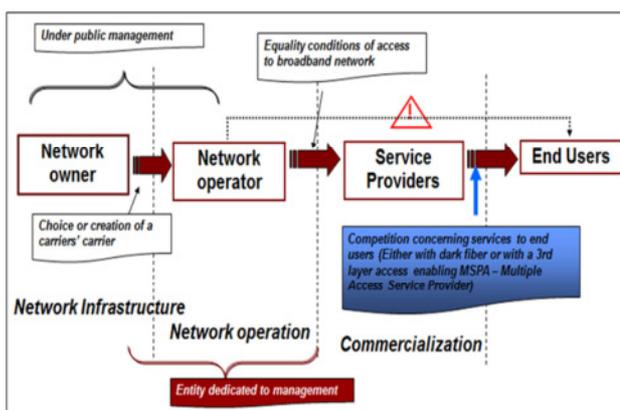
Open access means using the public funded capacities for all players, not just for strengthening the wealthiest players. It is also important to design the offers in such a way as to giving impulse to small players, and bridging the additional investments needed for remote areas.

Finally, **PPP – Public Private Partnership –** appears as a Holy Grail for many telecommunication stakeholders. This might be true, but it requires finding a tricky equilibrium between the private interest and public objectives. Many examples show that too much engagement or disengagement of public actors can endanger the outcome of such ventures; having public/private equilibrium is therefore key to the success of PPP projects. One significant example is again Rwanda where BSC, the public company, has the paradoxical role of being an ISP while intending to be a neutral wholesaler. This creates *de facto* a Public incumbent which competes directly with the private actors. A few years ago, Rwandese former Ministry for ICT (MINICT) wished to establish a PPP to privatize the company (BSC). This potentially further endangers the success of public intervention as it would have created a new incumbent benefitting from all public investments without any public governance.

Thus PPP remains a tricky issue with however many examples of successful and innovative cases led by some pioneering countries such as Kenya –which is setting up a PPP for the LTE frequencies– Burundi –which has established a concession for the Backbone (BBS-Burundi Backbone Systems), or Sierra Leone –which is implementing a PPP managed by SALCAB, to deploy a National Fiber Backbone. All these should be

scrutinized with care to set up the most appropriate PPP in each individual country.

Only once this has been implemented alongside regulatory reforms, can one consider the promotion of applications and local content, which will be supported by adequate infrastructures and affordable high quality access connections. Success of applications will be related to the involvement of the BOP[79] people, especially in rural zones. Indeed the focus has to be set on so-called **generic applications,** such as data collect, payment etc, which used -alone or together- as a platform for successful Use Case.

In setting up such National Broadband Strategies a specific consideration should be given to the fact that around 2/3 of the Sub-Saharan Africa's population remains rural.

Close to 30% of all cellular subscriptions belong to households in the wealthiest quintile, compared with less than 2 percent for the poorest quintile. A study[80] shows that, mobile voice infrastructure could cover 95% of the SSA population by 2015, while broadband could be available to around 85% by the same date without requiring a subsidy. But this will happen only if policy-makers promote effective competition and mobilize private sector resources for infrastructure deployment and modernization.

Last but not least, this will solely happen if public actors involve themselves alongside the private sector; the public sector is essential to a) at first, give the necessary impulse through national rollout and National Broadband Strategies; and later on b) regulate the telecommunications sector so as to boost competition, and c) continue to play a part in reducing the digital divide.

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Created in 1999 by strategy consultants engaged in broadband since 1993, TELECOMMUNICATIONS CONSULTANTS bmp (bmp TC) is a group of telecoms strategy consultancy that provides strategic and operational support to the telecommunications market. Through its experienced consultants, the heart of bmp TC activities is local loop (ultra) Broadband business models, the implementation of innovative models of broadband and how to manage PPP broadband fiber networks or other (in digital project management, for example). The structure of bmp TC customers brings together all the telecommunications market (operators, service providers, network operators, electricians with telecom activities, suppliers, government authorities at different levels).

Countries of intervention of bmp TC

ANNEX
African applications – significant examples

AppLab	http://www.grameenfoundation.applab.org	Disseminate and gather relevant information by SMS	
Bridge IT	http://www.iyfnet.org/bridgeit	Use mobile phone and digital technology to increase quality of teacher instruction and pupil achievement in primary school in math, science, and life skills.	Since 2007, 150 schools have adopted the program with more than 1,000 schoool teachers trained and around 80,000 rural and urban students have been participating.
ChildCount+	http://www.childcount.org	Allow data collection about children's and mother's health by SMS	More than 20,000 reports on alimentation have been made and around 10,000 children and 5,000 thousand mothers are followed thanks to that program
CKW	http://www.grameenfoundation.applab.org/section/community-knowledge-worker-project	Provide free services and information to farmers by training Community Knowledge Workers	In 2011, the program gathered over 17,000 farming households, representing around 700 households per CKW
Dr Math		Allow students to send a math question via Mxit and enter into a discussion with a tutor ready to answer any math question.	
DrumNet	http://www.prideafrica.com/	Access to information, financial services and markets.	
EpiSurveyor	http://www.datadyne.org/episurveyor	Use mobile phone to create an health data base about major diseases	42 percent increase in downloads in March compared to February 2011. Overall, more than 80,000 reports have been generated
Frogtek	http://frogtek.org/	delivers innovative financial products tailored for the needs of SMEs which can more easily manage their inventories and operate simple cash register through the application	
Govnet	http://www.portaldogoverno.gov.mz/	In Mozambique	Connects 140 institutions in 2011
Huduma	http://huduma.info/	crowd sourcing to monitor the effectiveness of services such as health and education, and soon on infrastructure, governance, water and justice	
iCow	http://icow.co.ke/	keeps farmer abreast of essential animal breeding and feeding methods by SMS	In October 2011, 1,300 farmers registered who can save up to $160 per year per cow
IKON Tele-radiology	http://www.iicd.org/projects/mali-teleradiology	Allow health centers in rural areas gain the support of larger hospitals in cities through ICT	

Keneya Blown	http://www.keneya.net/	Offers physician and hospitals a seamless way to connect and share critical patient and diagnostic information.	
Kilimo Salama	http://kilimosalama.wordpress.com/	Insurance program in Kenya to insure farmers' inputs	In May 2011, 11,000 subscribers among poor farmers in Kenya
Kopesha	http://www.paygsolutions.com/Kopesha.htm	Provide MFIs with mobile technologies and cloud-based IT systems to enable them to work more efficiently and profitably	
Kopo-Kopo	www.kopokopo.com	offers enterprises a low cost, subscription-based software platform that makes integration of mobile money payment solutions possible and easier	The service is now used by 16,000 dustomers [b]
Manobi	http://www.manobi.net/foundation/	Free access to information by SMS.	4,000 subscribers in Senegal. Increase in income by 40-50%
Masiluleke project	http://poptech.org/project_m	Fight HIV and TB epidemics by setting up a free hotline and sending free SMS to build awareness.	Millions of SMS have been sent
Math for Mobile	http://www.math4mobile.com/	Help students to learn intuitively about math concepts	
Microensure	http://www.microensure.com	introduce micro-insurance solutions via mobile phones. Its product line includes life insurance in Ghana, farmers' crop insurance in Tanzania …	In 2010, after 3 years of operation, the company grew from serving 600,000 people at the beginning of the year to more than 2 million at its end.
M-kesho	http://www.safaricom.co.ke/	provide credit/saving accounts through mobile phone to respond to the lack of banks branches in rural areas	3 months after launch already half a million accounts were opened
M-Kilimo	http://m-kilimo.com/	Helpline enabling farmers to receive real-time answers on agriculture related subjects	As of March 2011, 38,000 questions have been asked and answered
MPayer		Manage mobile payments and corporate collection accounts (Mpesa, Zap…)	
Mobidinar	http://e-dinar.poste.tn/	enable making online payment for water, electricity and telephone bills in Tunisia	
Momath	http://projects.developer.nokia.com/Momaths		After the 24 week pilot, 82% of usage happened outside school hours and math competency had risen by 14%. In 2011 the project was scaled up to 150 schools, and 40,000 learners
Motech	http://www.grameenfoundation.org/motech/devinfo	Use GPRS, SMS and IVR to survey midwives and empower them to record and update critical data about pregnancy.	In March 2011, Motech registered more than 6,000 users.

Movirtu	www.movirtu.com	mobile financial services to consumers without a mobile phone by using a cloud-based solution with a virtual SIM system	Each end user is expected to save an additional US$5-6/month, which is equivalent to 2-3 days of income or a 10% increase in savings.
mPedigree	http://mpedigree.org/	Allow the verification of the authenticity of a drug packaging by simply sending a SMS.	
M-ubuntu	http://www.m-ubuntu.org	Promote literacy in South Africa by connecting teachers with m-literacy coaches in the US and UK	A pilot phase was launched in 2009-10 and involved 20 teachers and 600 learners.
Open Initiative	http://opendata.go.ke/	allow communities and non-experts in Kenya to help manage and moderate development processes to secure concrete commitments from governments to promote transparency	
Pesinet	http://www.pesinet.org/wp/	Reuce child mortality by frequent monitoring children under five	The program has enrolled 620 children [b]
Rapid SMS	http://www.rapidsms.org/	Monitor, analyze and customize field reports while enabling SMS between field monitors.	
RIES	http://www.poverty-action.org	offer business solutions suitable to rural settings, taking into consideration the specific business and commercial needs of Kenya's rural economy	
Sodnet	http://www.sodnet.org/	provides to citizens a budget tracking tool application in Kenya	
Text to Change	http://mobileactive.org/mobile-tools/text-to-change-sms-quiz	Uses quizzes through SMS to educate, engage and empower people on health related issues	
WoredaNet	http://www.sictda.gov.et	provide ICT services such as video conferencing, messaging, and provide access to data centers	Network linking more than 600 local governments in Ethiopia
Yoza Project (M4Lit)	http://yozaproject.com/	explore the viability of using mobile phones to support reading and writing by youth	The first published novel attracted 63,000 subscribers and generated 30,000 comments in 1 year

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