

The challenge of digital inclusion in Mozambique

ICTs are assuming increasing importance in the achievement of development goals and in promoting citizen participation. Mozambique was one of the first African countries to have a national policy aimed at maximising their contribution. This brief summarises a review of the achievements and weaknesses of the policy and considers the next steps needed to meet the information and communication needs of the coming generation.

Mozambique was one of the first countries in Africa to have a comprehensive policy for information and communication technologies (ICTs) and their contribution to development (ICT4D). Since their completion in 2002, the National ICT Policy and Implementation Strategy have provided the framework for the country's ICT initiatives aimed at achieving development outcomes. Not all of the aims have been achieved, but there have been significant positive results from government commitment in this area.

The review:

- looks at the successes and weaknesses of policy and implementation to date
- examines the challenges, opportunities and priorities for ICT4D in Mozambique today, and
- makes suggestions and recommendations for updating the policy and strategy to meet today's circumstances and tomorrow's needs.

A pupil from FPLM Primary School uses a microphone to make a speech at the Presidency in Maputo, during talks to discuss education in the developing world. Government policy on information and communication must meet the needs of the next generation.

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The primary focus is on 'digital inclusion'. Digital inclusion is not just about ensuring that people have access to ICTs through having computers in their communities or being taught to use computer software. Digital inclusion also means enabling people to use ICTs to improve their daily lives through relevant and local content available in appropriate forms. In this way ICTs can help to reduce the divide between urban and rural areas and promote equal access to information, education, goods and services.

Mozambique's experience offers pointers for other African governments and organisations who want to maximise the value of ICTs within development.

This brief summarises a critical review of Mozambique's ICT4D experience *Digital Inclusion in Mozambique: A challenge for all*. The review was conducted by the Eduardo Mondlane University Informatics Centre (CIUEM) as part of the Theta Regional ICT Discussion Forum Project, coordinated by Sangonet and funded by the Open Society Initiative for Southern Africa and the Embassy of Finland in South Africa. The Theta Project aims to provide a body of experience and framework for discussion of future ICT policy in the Southern Africa region. The full report can be seen at www.caicc.org.mz/images/stories/documentos/final_report_mozambique.pdf

This is one of a series of policy briefs produced by Panos London based on the work of the Theta project.

Health centre with computer equipment. Computers are still relatively uncommon in Mozambique.

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The Mozambique context

Mozambique, in Southern Africa, faces massive development challenges. It ranks 172nd out of 177 countries in the UN's Human Development Index.

Seventy per cent of its 21 million people live in rural areas and less than 10 per cent work in the formal economy. Subsistence farming and informal work are the main sources of livelihood support for the majority. Less than half the population can read and write.

There is also significant inequality. Although the figures are improving, women have lower literacy, education and income levels than men. Economic growth is heavily dependent on a small number of industrial megaprojects, which have little impact on the rural hinterland. Rural areas have very limited transport and power infrastructures and are also vulnerable to natural disasters such as floods, cyclones and droughts.

Government policies – the result of extensive consultation – set out a national vision and programme for development in medium term. ICTs play a significant part within this vision.

Research methodology

The study used three working methods: desk research, interviews with key actors, and group discussion and analysis. As there have been a number of recent studies of ICTs in Mozambique, priority was given to desk research. Open interviews were also conducted with key people in the ICT sector in Mozambique and with users representing Mozambican NGOs.

ICTs in Mozambique

The spread of ICTs in Mozambique is limited by poor infrastructure and poverty. Much of the country is remote, and power and landline communications are in short supply.

As elsewhere in Africa, the big ICT success story has been mobile phones. By 2008, there were more than four million mobile phone subscriptions in the country, equivalent to 21 per cent of the population, and their number was growing by about 50 per cent a year. People in all social groups, including the poor, could see the value of mobile phones in increased family and business communications and reduced travel and transaction costs – and they have been willing to pay for these benefits.

Broadcast radio is also vibrant and widespread. Recent figures are not available, but in 2002–03 over 50 per cent of households had a radio, including over 40 per cent of those in rural areas. There especially, broadcast radio is the main channel for information about issues of regional or national importance. As a result of deregulation and legislation on freedom of the press, there is considerable plurality of media, including some 60 community radio stations.

The spread of more complex ICTs is limited. Televisions are expensive and need power that is not readily available in rural areas. Computers and the internet are less common still. There were an estimated 100,000 computer users nationwide in 2007 – mostly higher income men in urban areas. However, there were only an estimated 24,000 internet users that year and this number was even more concentrated in higher status groups. Although these numbers are increasing, the lack of access to computers and the internet poses major challenges for their use in development initiatives.

Policy on ICTs and ICT4D

Mozambique's government was one of the first in Africa to recognise the potential of ICTs and to try to integrate them in national development.

As early as 1998, it set up an ICT Policy Commission, showing commitment at the highest level to prioritise and exploit ICTs for practical development goals. The Commission's work led to the adoption in 2000 of an ICT policy with objectives to:

- contribute to the fight against poverty and improve the living standards of Mozambicans
- increase citizens' access to knowledge
- improve the effectiveness and efficiency of public services
- change Mozambique into a producer, rather than a mere consumer, of ICTs, and
- make Mozambique, in time, a competitive player in the global information society.

These were ambitious goals. The policy focused national plans on six main areas: education, human resource development (or capacity building), health, universal access, infrastructure and governance. Special attention was also given to some sectors, such as agriculture and tourism, and groups, such as women and young people.

This policy was developed into an Implementation Strategy, published in 2002 and intended for implementation over the next two to five years. This also had ambitious goals, with 37 separate projects and a target budget of over US\$280 million – including a national transmission network costing over US\$100 million.

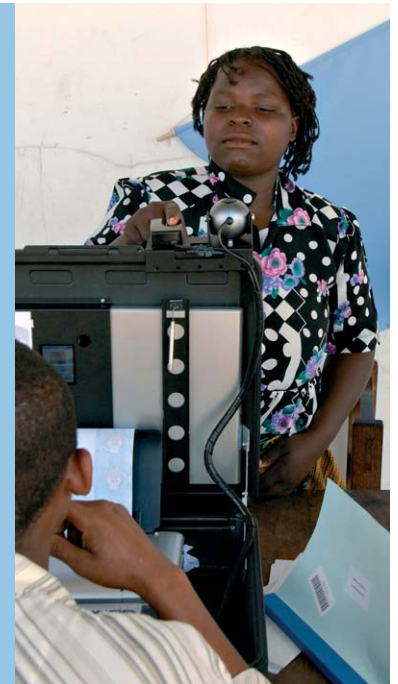
The government's emphasis on ICTs has featured to some degree in other development strategies, including the overall Agenda 2025, the national Poverty Reduction Action Plan, the Science, Technology and Innovation Strategy (ECTIM) and the Rural Development Strategy approved in 2007. The National ICT Policy and Implementation Strategy have also influenced plans and strategies in different social and economic sectors.

Voter registration

Voter registration was fully computerised for the first time in 2008. Compact computer kits, the size of a large briefcase, were purchased and distributed to each of the country's 128 districts. Registration brigades were recruited locally to re-register the name and details of each voter, and produce a voter card with a colour photograph and fingerprint.

This process meant that, for the first time, the use of ICT tools was demonstrated in practice in every corner of Mozambique. It also meant that anyone with some computer experience had the chance of earning some income as member of an election brigade, including those living in rural districts.

Despite multiple difficulties with equipment breakdowns, shortages of materials, power cuts, lack of fuel for generators and so on, the brigades managed to register nearly 10 million voters over 18 out of a total population of around 20 million.



A woman has her fingerprint read during registration for the January 2008 Provincial Elections during voter registration in 2008.

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Banking

One of the most visible fruits of ICTs, bringing practical benefits to vast numbers of citizens, is the computerisation of banking systems and the use of data transmission technologies.

There is still a serious shortage of bank branches at district level, though government pressure on the private banks to improve their services is beginning to pay off. However, an increasing number of ATMs enable those with bank accounts in many parts of the country (and all civil servants are now paid by bank transfer or cheque) to find out whether payments have been deposited, check their balances, get cash, pay utility bills or transfer funds to family members in real time.

Unfortunately the banks charge for ATM transactions, thus penalising their poorer customers in particular. However this may change with the arrival of more mobile banking services.

What has happened?

The National ICT Policy and Implementation Strategy had high aspirations. As well as specific initiatives developed by government agencies, it also aimed to establish a favourable, enabling environment for initiatives developed by others in the private sector and civil society. The review is clear that significant achievements have been made, but it also identifies gaps and weaknesses which have undermined the strategy and held back gains that could be made. In addition, technological change makes it necessary to update the strategy for today's communications environment.

Achievements

These are some of the achievements which can be identified to date.

- **Infrastructure:** A national broadband backbone has connected provincial capitals and is expected to cover all districts by 2011. New infrastructure is supported by improvements in the national power grid. Developments outside the strategy have also been important. Mobile phone networks now reach throughout the country and are used by very many citizens. Undersea cable links completed in 2009–10 will increase capacity and reduce costs for users.
- **Access:** The national Universal Access Fund has rolled out pilot projects for voice and internet in some areas. Lower charges for dial-up internet access have been introduced by the state-owned fixed telephone operator. About 20 community multimedia centres have been established, with a national rollout programme starting this year. There are now some 60 community radio stations.
- **Human capacity:** The implementation strategy aims both to enable citizens to use ICTs and to build the next generation of ICT professionals. Official initiatives – such as the SchoolNet programme to equip secondary schools with computers, the piloting of a secondary ICT curriculum and university-level distance education – have taken place alongside growth in private sector computer courses and activities.

E-government and governance:

The strategy aims to improve the efficiency and transparency of government and to enable greater participation by citizens. A government electronic network now links national and provincial government agencies. A state financial administration system and a government portal have been introduced.

- **Business development:** There has been some growth of an ICT service sector, especially in the capital, and a government-supported incubator has graduated five ICT small businesses. A law on electronic transactions is in draft.

Weaknesses

These are significant achievements. In spite of them, however, eight years after approval of the ICT policy, the study finds that Mozambique is still a long way from achieving widespread and effective use of ICTs. It suggests a number of structural reasons for this, which may have relevance in other countries too.

- 1 There may have been excessive optimism in the ICT policy and implementation strategy – including underestimation of the time required to plan, organise, mobilise and train people before and during implementation.
- 2 The implementation unit created to manage the strategy focused on major projects and had too few resources to devote to coordination. As a result, the overall strategy was not well integrated with those in individual social and economic areas.
- 3 A national Consultative Forum on ICTs, envisaged in 2002, was never implemented. As a result, there has been limited consultation with the wider community, and many critical decisions that affect people's lives have been taken by a few officials.
- 4 External funding has not matched the hopes and targets included in the policy and strategy.

In addition, some initiatives have been poorly targeted on needs. ICT higher education courses, for example, have been too theoretical, not focused sufficiently on what business actually requires. In addition, it has been difficult to adjust a strategy developed in 2002 to exploit changing communications markets and the opportunities of better new technologies and services.

As a result, the report finds that implementation of the strategy to date has been too focused on technology and public services and insufficiently focused on those whose needs the technology should serve. It suggests a new way of thinking about ICT4D, focused on a wider understanding of access and engagement, which it calls *digital inclusion*.



Construction of a new bridge over the Zambezi river near Caia. Improved physical infrastructure is important to digital inclusion but so are the skills to make use of technology and the ability to pay for it.

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‘Digital inclusion’: rethinking ICT4D

A lot of thinking about ICT4D in Africa has emphasised access to infrastructure. This is obviously important: without infrastructure, ICTs can offer very little, so it must have high priority. But infrastructure alone is not enough to bring about development. People need access if they are to make use of ICTs, and access means more than simply networks. Access, in this study, has three main elements:

- access to physical infrastructure, including improved transport and electric power
- the capability to make use of it – the skills, experience and confidence of the users
- the financial ability to pay for use; improved infrastructure and skills will mean little if people cannot afford access.

Without all three elements in place, the best of networks will have only limited impact on people’s lives. However access is also insufficient in itself. What is needed is digital inclusion.

Digital inclusion is much more than making people ‘literate’ in ICTs or ensuring that they have affordable access to networks, services and ICT devices (capability and affordability). For ICTs to contribute fully to development, they should be seen not just as vehicles for better government or business services, but as assets which are appropriated by the individuals and communities that use them, in their own ways, to help them meet their daily needs.

By appropriating technology in this way, communities can select and transform the ICTs and the content they require, resulting over time in new patterns of behaviour, expanded individual choice and freedom, and new opportunities for development. In this way communities will:

- promote more equal access to, and use of, information, education, training, business, entertainment and participation
- help to reduce divisions between urban and rural areas, and thereby
- contribute to the social and economic development of country as a whole.

The Mozambique government could do more to encourage this democratic ownership of ICTs in people’s lives by involving citizens more closely in the design and implementation of ICT policies and strategy. Civil society organisations too could make more use of ICTs and play a more dynamic role in representing people’s needs within decision making.

NGOs and ICTS

Interviews with four civil society organisations showed that, although their use of ICTs had increased, they were still far from using them to their full potential. The NGOs made use of email to communicate with partners and donors, and the internet to search for relevant information. However, some found that their broadband connection was unreliable (‘it’s like the wind, today it comes, tomorrow it goes’), while others felt that if they sent an email, ‘we would have to phone as well, as people don’t check their mail or look at the internet regularly’.

Interviewees identified the greatest barriers to better use of ICTs as their own ignorance about what ICTs can do, lack of skills, lack of resources and lack of reliability. They all felt it was important that the government extend the right to communicate and be informed to the most disadvantaged groups so that they were not excluded.

Citizens should have forums and spaces to discuss how ICT policies can meet their needs.

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Looking ahead

Although there are still many challenges facing ICT4D in Mozambique, there are clear signs that the country can achieve much greater digital inclusion in the near future.

- The report sees the present as a transition phase. The National ICT Policy and Implementation Strategy introduced a period of preparation and awareness raising. It took the first steps towards greater access to information, but it now needs more strategic focus and investment to ensure that all citizens can use, as well as access, new technology.
- The next 10 years should see much greater deployment and use of ICTs. New infrastructures will be installed, guaranteeing reliable high-speed services and resolving many current difficulties. Data, voice and image communications will become available, even in more remote areas. The development of wireless technologies will encourage wider local access. More experience and better service quality will enhance community trust in new ICTs. New forms of data storage and management will facilitate access and use, while the rights of citizens will be protected in terms of data security, privacy and freedom of expression. Prices will fall significantly and people will gain the skills and competence to develop, maintain and innovate the use of ICTs.
- In the longer term, this will bring about an inclusive information society. Mozambicans will move beyond these phases of awareness raising and adoption into a new phase in which ICTs are fully integrated in their society and economy. This integration will imply cultural changes in attitudes and behaviour towards technologies, work, society and governance.

Changes in government policy are needed to hasten the transition from awareness raising to digital inclusion. In the final section of its report, the review team recommends changes in the focus and structure of ICT policy which it believes will help achieve this.

Summary and recommendations – towards digital inclusion

Things move fast in the world of ICTs. New technologies are constantly emerging, offering new and cheaper ways of achieving objectives and creating opportunities to do things that were previously not possible. In every country, including Mozambique, the last decade has seen enormous changes in technology, services and use of ICTs – especially the rapid growth of mobile telephony and the increased range of services it offers. The cost of enabling computer and internet access is falling rapidly and new ways of using ICTs and the internet are constantly being introduced. Everyone in the ICT world needs to continuously review how and what they are doing. The 2000 ICT Policy and 2002 Implementation Strategy provided a sound foundation in their day but are now out of date.

Mozambique has achieved significant gains since the introduction of its ICT policy, but a new approach is needed to deliver what Mozambicans need today, focused on citizen-centred digital inclusion. The study's key recommendations below are intended to contribute towards implementation of the next phase, helping to ensure that Mozambique will move on from the achievements of its first 10 years of ICT policy to a future of genuine digital inclusion.

Renewing policies and strategies for digital inclusion

- **Review and update ICT policy and strategy, adopting a citizen-centred approach**
- Improve integration of digital inclusion approaches into development strategies, ensuring government coordination of national and sectoral ICT policies and investments and appropriate funding
- Establish an ICT sector and restructure regulatory bodies in the light of technological convergence
- Create consultative forums and spaces for public and CSO participation in ICT policy development
- Expand the mandate of the Universal Access Fund to support substantive community content and communication initiatives, ensuring multi-sectoral involvement and oversight
- Involve CSOs in preparing radio and TV digitalisation strategies that will minimise costs for the public, and in public education campaigns.

Increasing citizen participation

- **Build CSO capacity to use ICTs and to raise awareness on ICT policy questions, enabling them to play a leading role in advocating for digital inclusion, defending consumer rights and monitoring policy decisions**
- Promote media involvement in promoting debates and public education on the implications for society of technological issues such as convergence, technology neutrality and citizens' data protection
- Guarantee affordable access to ICT-enabled services, especially for rural areas and the poor, through policies for reducing investment and operating costs, smart subsidies and domestic production of cheap equipment.
- Recognise and support the role of community media and ICT access in promoting the free flow of multi-lingual information and expanding citizens' capabilities
- Approve legislation to guarantee greater access to information at all levels of government and facilitate free access to online public information from government, Parliament, justice and other sectors as well as research networks.

Building human capacity

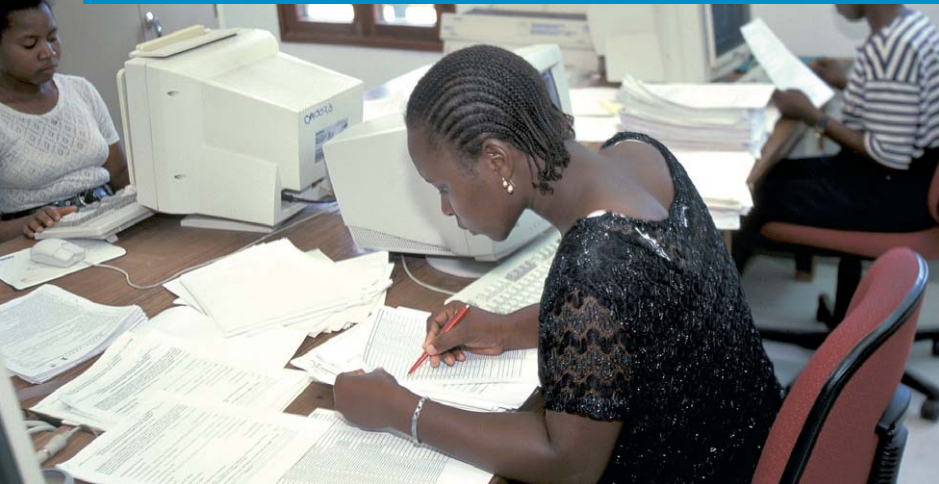
- **Use the national education system as a key promoter of the digital inclusion of coming generations through training teachers, equipping schools and adapting curricula**
- Train a new type of multi-skilled ICT technician and update courses for electricians and others, at technical schools and institutes, CPRDs and private training centres throughout the country
- Invest in massive training in ICT usage skills, including in FOSS, for the poor and women
- Adapt university-level ICT curricula to the needs of digital inclusion and the market
- Promote standardised software in Portuguese and content in local languages.

Producing more and better services

- **Expand government and private sector e-services for the public and implement the necessary organisational and attitudinal changes within public bodies**
- Introduce information and other services to support agriculture, commerce, small industry, export and the social sector
- Develop specialised platforms for knowledge management
- Provide facilities for the production and hosting of local and community websites, and for use of Web 2.0 services.

Improving use of planned infrastructure

- **Plan capacity taking into account digital inclusion policies and new technologies that will increase needs**
- Ensure equitable access through support for community multimedia centres and other initiatives
- Implement and regulate a policy of shared infrastructures and joint building to lower costs and extend reach
- Improve the quality and reduce the cost to all users of the expanded energy and telecommunications networks.



Collating test results on computer in the Malaria Research Unit (CISM), Manhiça hospital.

ANDY JOHNSTONE | PANOS PICTURES

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The full report, **Digital Inclusion in Mozambique: A Challenge for All** is available for download from www.caicc.org.mz/images/stories/documentos/final_report_mozambique.pdf (English version) and www.caicc.org.mz/images/stories/documentos/finalmozambiqueportugues_100709.pdf (Portuguese version)

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