INTERNET GOVERNANCE IN KENYA – AN ASSESSMENT

for the Internet Society

David Souter and Monica Kerretts-Makau

September 2012

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CHAPTER 1 - INTRODUCTION

A. Background and objectives

This report describes and assesses the national environment for Internet governance in Kenya in April 2012, with some supplementary material from the meeting of the Kenya Internet Governance Forum which was held in July 2012.

It has been compiled in accordance with a framework for national assessments of Internet governance prepared for the Internet Society in early 2012. As well as standing on its own terms as a study of Internet governance in Kenya, it also acts as a pilot implementation of that framework, which is described in section B below. The Internet Society hopes that this methodology can be used for a number of comparative studies of Internet governance in different countries, in Africa and elsewhere, which could help to develop thinking about future requirements at both national and international levels.

Internet governance is defined, in the framework and in this study, as it was defined by the World Summit on the Information Society in 2005, *i.e.* as

> *the development and application by Governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures and programmes that shape the evolution and use of the Internet.*[1]

This definition includes both the technical governance of the Internet – its protocols and standards, coordination, domain name management *etc.* – and the interface between the Internet and other public policy domains which are affected by its use.

Internet governance has been characterised, at both international and national levels, by the participation of diverse stakeholder groups. These include international entities concerned with the Internet itself (such as ICANN, the Internet Engineering Task Force (IETF) and the Internet Governance Forum (IGF)), intergovernmental organisations, national governments, private sector businesses, civil society organisations, and the Internet technical and professional community. Much of the decision-making which affects the evolution and use of the Internet takes place through processes and in fora which lie outside the governmental and intergovernmental arrangements that predominate in other technical and policy domains.

[1] WSIS, *Tunis Agenda for the Information Society*, 2005, para. 34, http://www.itu.int/wsis/docs2/tunis/off/6rev1.html

The relationship between global and national governance of the Internet is complex. The Internet is often described as inherently global rather than national in character, with technical characteristics, values and structures that bypass national governance arrangements. In practice, however, national governance arrangements are also highly significant – in technical areas such as the management of country level domains (ccTLDs); in the deployment of the underlying infrastructure on which the Internet depends, which is subject to national regulation; and at the interface between the Internet and other policy domains which are subject to national laws and social norms. This report, and others that will be based on the Internet Society framework, are concerned with these national dimensions of Internet governance and with the ways in which they interact with international or global governance arrangements.

The assessment of Kenya's Internet governance environment in this report is therefore built around three main building blocks:

- the **issues** of Internet governance which are significant today;
- the **stakeholders** that play a part in national Internet governance; and
- the **decision-making processes and fora** which affect the evolution and use of the Internet at national level.

It seeks to address six research questions which are identified in the ISOC framework for national assessments. These are:

a. What is the general level of understanding and participation in Internet governance in Kenya?
b. What are the principal issues of Internet governance, and how are these changing over time?
c. Who are the principal stakeholders in Internet governance at national level, and how do they interact with one another?
d. What are the decision-making processes and fora that influence the evolution and use of the Internet in Kenya?
e. How do these issues, stakeholders and decision-making processes interact?
f. How effective is this national Internet governance environment perceived to be by stakeholders, what challenges arise from it, and how might they be addressed by national stakeholders and ISOC.

The structure of the report is as follows:

- **Chapter 1** outlines the background and methodology for the study.
- **Chapter 2** sets out the facts and figures of Internet development and use in Kenya, and outlines national policy objectives for the Internet.
- **Chapter 3** maps the issues, stakeholders and decision-making fora of significance within the country, as things stand today.
    - **Chapter 3A** is concerned with issues.
    - **Chapter 3B** is concerned with stakeholders.
    - **Chapter 3C** is concerned with decision-making processes and fora.
    - **Chapter 3D** summarises perceptions of Internet governance in Kenya emerging from discussions held as part of the research.
- **Chapter 4** summarises the findings and makes recommendations to ISOC and national stakeholders.

One further point should be borne in mind throughout this report. The Internet experiences continual change in its technology and services, in the reach of access networks, the number and experience of Internet users, and the impact which it has on economy and society, politics and culture. Innovations such as cloud computing, Web 2.0 and social networking have had very substantial effects on the Internet and the ways in

which it affects society in the few years since the World Summit on the Information Society defined Internet governance in 2005. Internet governance issues and stakeholders, and the decision-making processes and fora which are significant for Internet governance, also change rapidly in response to these developments.

Any study like this is therefore a study of one moment in time. This report describes and assesses Internet governance in Kenya in April 2012, with some supplementary information from the national Internet Governance Forum in July 2012. Its findings and conclusions would have been different in April/July 2010 and would be different again in April/July 2014. While it has value for the future, it should be understood within its chronological as well as geographical context.

B. Methodology

This report has been compiled in accordance with a framework for national assessments of Internet governance arrangements which was prepared (by one of the authors of this report, David Souter) for the Internet Society in April 2012. It is the first national assessment to be undertaken using this framework, which is intended to facilitate comparisons of national experience between countries and over time. It is therefore a pilot implementation, part of whose purpose has been to test the methodology in the ISOC framework. Kenya was chosen for this purpose because of its wide-ranging Internet governance community, its recent experience in hosting major international Internet governance meetings (ICANN in 2010, the global IGF in 2011), and the availability of a relatively wide range of published sources.

The report has been prepared by two experts – one (Monica Kerretts) with particular experience of communications issues in Kenya and other countries in its region, the other (David Souter) with significant knowledge of Kenya and wide-ranging experience of communications governance worldwide. This combination of internal and external experience is an important element in the ISOC framework.

The study draws on and brings together information from a range of sources, principally:

a) Desk research, including:
   - statistics, policy documents and evaluative assessments published by government agencies and other stakeholders in Internet governance in Kenya, and by independent agencies and observers; and
   - inputs to online discussion lists and other Internet governance fora in the country (including the Kenya Internet Governance Forum);
b) Interviews and discussions with informants who are concerned with different aspect of Internet governance in Kenya, from all stakeholder groups (including government agencies, private sector businesses, civil society and the Internet technical and professional community). These interviews and discussions were undertaken by both authors, jointly, during February 2012.

As noted above, this assessment was undertaken as a pilot study which, in addition to addressing the Kenyan Internet governance environment, provides evidence to assess a framework methodology for national assessments which is described in a separate report to ISOC. Conclusions from the study which relate to the ISOC framework have been incorporated in that separate report.

The mapping of Internet governance in Chapter 3 of this report uses approaches which are described in the ISOC framework. These draw substantially on techniques for mapping Internet governance which were developed by David Souter for the Association for Progressive Communications in 2010, which have been published by APC and are used here, with acknowledgement, under a Creative Commons licence held by APC.[2]

[2] The original mapping presentation and explanatory notes published by APC are available at http://www.apc.org/en/pubs/books/mapping-Internet-public-policy. These two documents should be read in conjunction

CHAPTER 2 - THE INTERNET IN KENYA - ORIGINS AND TRENDS

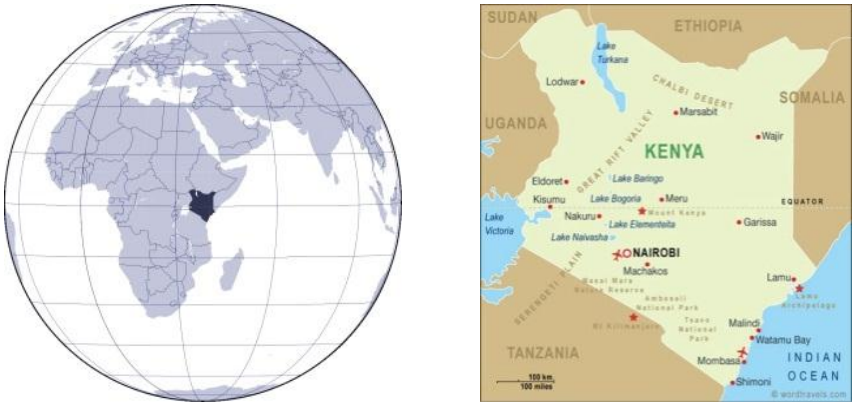
This Chapter of the report sets out the basic facts and figures of Internet development in Kenya, including trends in Internet access and use, and ways in which the Internet has been incorporated into national policy frameworks. It is divided into the following sections.

- Section A provides a brief introduction to Kenya, for readers who are not familiar with the country.
- Section B gives a brief history of the Internet in Kenya, drawing attention to developments of lasting significance for Internet governance.
- Section C describes the Internet as things stood in Kenya in the first half of 2012, focusing in turn on:
    - infrastructure and connectivity;
    - the communications market;
    - Internet access and usage; and
    - the policy framework for communications as set out by government.

a. The national context

Kenya is a low-income developing country located on the equator, on the east coast of Africa.[3] It has a large and diverse land area (580km^2) which includes coastal plains and high mountains, forest, savannah and arid near-desert areas. Climate is also highly variable across the country.

Figure 1: Kenya – location and geography



Kenya's population of around 43 million is the seventh largest in Africa. Only some 40% of these people live in urban areas, the most important of which are the capital Nairobi (inland, over 3 million people in 2009) and the port city Mombasa (around 1 million). The population growth rate in 2010 was estimated at 2.6% *per annum*, among the world's highest, and as a result about 45% of Kenyans are aged 16 and under. There is significant ethnic and cultural diversity, which has played an important part in national political development. Kiswahili and English are the official languages, and widely spoken.

Kenya's economy is more diverse than many in Africa, but is nevertheless dominated by agriculture which accounts for more than 20% of GDP and 75% of employment. Export-oriented agriculture, tourism,

[3] Maps are derived from http://www.vidiani.com/?p=8881, and http://www.wordtravels.com/Travelguide/Countries/Kenya/Map. Permission is required for publication.

construction and telecommunications have been dynamic sectors in recent years, and the country is experiencing economic growth of between 4% and 5% *per annum* (around twice the rate of population growth). Transport infrastructure is poor and overstretched, a particular challenge as Mombasa is a major port of entry not just for Kenya but also for its landlocked neighbours Uganda, Rwanda and South Sudan, and for parts of Tanzania.

In spite of recent economic growth, Kenya has a relatively low level of GDP per head, estimated at $875 (nominal) and $1725 (purchasing power parity) in 2011, placing it 150th of 180 countries in the World Bank listing, a little ahead of its neighbours Uganda and Tanzania. It ranks 143rd of 187 countries in the 2011 Human Development Index prepared by the UN Development Programme, which includes a number of social and economic indicators.[4] Kenya still receives substantial bilateral and multilateral aid, but is not on the UN list of Least Developed Countries. There are large disparities between rich and poor, with significant levels of wealth at the top of the economy and a sizable middle class, especially in Nairobi. The economy faces ongoing problems of corruption – Kenya ranks 154th in Transparency International's Corruption Perception Index for 2011.[5]

Kenya has been independent since 1963, and has a democratically elected president and parliament. Since violent unrest followed a disputed election in 2007/8, power has been shared in a grand coalition led by a president and prime minister from different political parties. The next presidential and parliamentary elections are scheduled for March 2013. A new constitution, agreed following widespread public debate, came into force in 2010, dividing the country into 47 districts which will have a high degree of autonomy, and incorporating a wide-ranging bill of rights. There is a vibrant free press.

Kenya is a member of three of Africa's Regional Economic Communities, of which two are economically significant. It is the most economically powerful member of the East African Community, EAC, and is also a member of the Common Market for Eastern and Southern Africa, COMESA. It hosts the headquarters of the UN Environment Programme.

Core development principles and objectives for the country are set out in a *Vision 2030* statement, which was published in 2006 and is to be implemented through a succession of five-year plans. The *Vision* statement aspires to build an economy comparable to the Asian 'tiger' economies by 2030, with a highly ambitious growth rate of 10% *p.a.* anticipated from 2012, accompanied by improved governance and social welfare. Telecommunications has been a dynamic growth sector in the economy in recent years, and national development plans have sought to exploit its potential by promoting business process outsourcing (BPO) and IT-enabled services (ITES).

b. The Internet in Kenya – a brief history

Internet use was first noted in Kenya in the early 1990s, but 1995 marks the start of the country's formal Internet development with the establishment of the first (unlicensed) commercial ISPs and formation of a study group to consider options for the 'Internet phenomenon' by the Kenya Posts and Telecommunications Corporation (KPTC, the government-owned telco).[6] By 2000, access to the Internet was available through a number of competing ISPs and some 250 cybercafes, about half of which were located in Nairobi.

[4] http://hdr.undp.org/en/statistics/

[5] http://cpi.transparency.org/cpi2011/results/

[6] A summary of the period to 2007 can be found in http://www.cck.go.ke/resc/downloads/Final_Internet_market_analysis_report.pdf, pp 33ff.

The telecommunications market in Kenya was broadly liberalised in 1999, giving more scope for private sector innovation and market entry. The Communications Commission of Kenya (CCK) was established to regulate the sector and, for the first time, issued ISPs with licences. However, the former incumbent telco (now renamed Telkom Kenya) retained a monopoly to operate the Internet gateway and backbone until mid-2004. During this period, it expanded the national backbone, but available international bandwidth did not increase rapidly until after the end of Telkom's exclusivity period. Shortly after this ended, CCK licensed two additional Internet Backbone Gateway Operators, and allowed telecommunications businesses – including Telkom and the mobile operators Safaricom and Celtel – to offer mobile Internet services in competition with stand-alone ISPs. An earlier ban on Voice over IP services was also lifted around this time.

An important controversy during Kenya's early Internet development concerned the establishment of the Kenya Internet Exchange Point (KIXP) around the turn of the century. An IXP was originally established by the ISPs' association, TESPOK, but it was opposed by KPTC on the grounds that it was inconsistent with its exclusive rights and would reduce revenue. This led to its closure by the authorities. CCK subsequently issued TESPOK with a licence to run an IXP, on the basis that it was a peering facility rather than a gateway. The controversy over the IXP was a significant moment in the liberalisation of the Kenyan market and also raised awareness of the importance of regulatory issues within the Kenyan ICT community.

CCK commissioned a market study of the Internet in Kenya in 2006/7.[7] This suggested that some 2.7 million Kenyans were then using the Internet, 80% of them in Nairobi, and that the market was constrained by high costs, poor regulatory governance (for example in spectrum management) and the lack of locally relevant content. Its recommendations envisaged the development of a market of 8 million users, to be encouraged by government and regulatory interventions including improved national fibre infrastructure.

The introduction of a technology-neutral licensing regime in 2008 simplified the market structure for telecommunications and the Internet in Kenya and removed many of the obstacles that had inhibited the development of competition and business planning. The new licensing regime – which is described later in this chapter – is based around three main licence categories, concerned with network facilities, applications or services, and content – and imposes no technology constraints on how services are to be delivered.

One of the principal challenges inhibiting Internet development in Kenya and neighbouring countries at this time was the absence of submarine cable connectivity. East Africa was the last significant world region to be connected to international optic fibre networks, only achieving this in 2009 when the TEAMS and SEACOM cables connected at Mombasa – the former a project spearheaded by the government of Kenya. Until these went live, Kenya relied on satellite uplinks for international telecommunications and Internet connectivity. The very considerable increase in international bandwidth (and consequential lower costs) resulting from these, and from the subsequent arrival of the EASSy cable, has substantially boosted the Internet market in Kenya.

Kenya was one of the first countries in the world to establish a national Internet Governance Forum – and East Africa the first world region to establish a regional IGF – following the creation of the global IGF in 2007. The first meeting of the Kenya IGF was held in Nairobi in October 2008, followed by the first meeting of the East African IGF in November of that year. Both were coordinated by the Kenya ICT Action Network (KICTANet), an advocacy grouping of civil society and private sector interests. They have been held annually since then, have been influential in stimulating the development of national and regional IGFs elsewhere, and have raised Kenya's profile in international Internet activity. Following completion of the 2012 meeting, the Kenya IGF will now be organised by the Kenya national chapter of the Internet Society. Kenya has also played an increasingly

[7] http://www.cck.go.ke/resc/downloads/Final_Internet_market_analysis_report.pdf

significant role in international Internet governance, hosting a bi-annual meeting of ICANN in 2010 and the global IGF in 2011.

Alongside the development of the Internet, Kenya has seen a number of important innovations in other areas of communications and development. Like other developing countries, Kenya's telecommunications market is dominated by mobile communications, and the mobile sector has experienced more innovation than fixed network services. The best-known innovative 'success story' in Kenya's ICT market is the exceptionally rapid growth of mobile transactions following the launch of Safaricom's MPESA service in 2007. By the end of 2011, this had some 17 million customers in a country with an adult population of less than 25 million. Kenya and its neighbours have also seen the development of a new model of international mobile calling, which is effectively free of roaming charges. The political crisis in Kenya in 2007/8 saw innovative use of SMS-based services to monitor political violence. As in other countries the widespread use of mobile phones has given them a central role in many people's daily lives, which is extending as they become more capable of delivering Internet and other services. Some 99% of Internet subscriptions in Kenya are now mobile subscriptions.

c. The Internet in Kenya in 2012

This section of the report summarises the current state of play and current trends in the Internet in Kenya. It is not intended to provide a comprehensive account but to give sufficient background context for an understanding of national Internet governance arrangements and issues. It is divided into four parts, which deal in turn with:

a. infrastructure, including available bandwidth;
b. the communications market and licensing framework;
c. access and usage; and
d. government policy towards the Internet.

a. Infrastructure and access

Several tiers of infrastructure are required by end-users to access the Internet. In particular, access requires connectivity to international/global (cable and satellite) infrastructure, national backbone networks which distribute telecommunications traffic around the country, and local access networks which deliver traffic from national networks to end-users (who may use either fixed or mobile networks to gain access). Competition is generally considered necessary in all of these market segments, and at the interfaces between them, in order to secure the most beneficial outcomes for consumers in terms of price, reliability and quality of service. A critical point in the development of competition in Kenya, as in most countries, has been the liberalisation of international gateway provision, for which the former incumbent telco held exclusive rights until 2004.

International connectivity in Kenya has been transformed by the arrival of submarine cables along the East African coast at the end of the last decade. East Africa was the last significant world region not to be connected to international submarine cable networks. Until 2009, Kenya and its neighbours depended on expensive satellite connections which offered much lower total bandwidth than could be made available through submarine facilities. Prolonged negotiations over the financing and access terms of a single East African cable came to an end at the turn of the decade with the arrival of two submarine cables in Mombasa. These are:

- The TEAMS cable (The East African Marine System). The construction of this cable was initiated by the Government of Kenya. It is owned jointly by TEAMS Ltd (a coalition of the Government and Kenyan

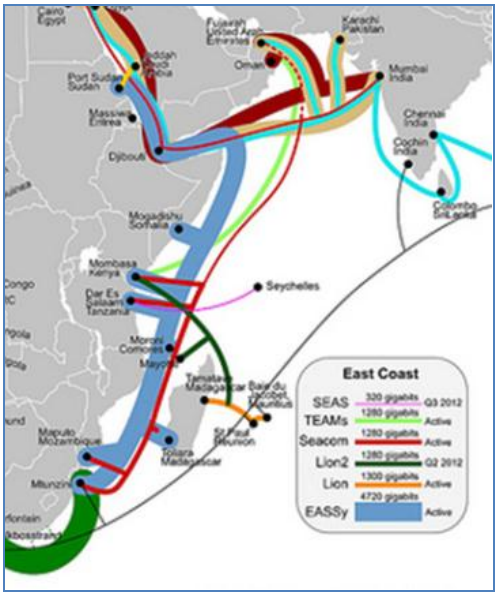
telecoms operators, which holds 85%) and the Emirati network operator Etisalat. It connects with international cables in the United Arab Emirates and has an overall capacity of 1280 Gb/s.

- The SEACOM cable. This is three-quarters owned by a number of African businesses, with additional capital from a US investment company. It has landing points along the East African coast and also has an overall capacity of 1280 Gb/s.

Together, these two cables, which commenced service in 2009, substantially increased available international bandwidth in Kenya. The arrival in 2010 of a third cable running up the East African coast, EASSy (The Eastern African Submarine Cable System), has had further substantial impact on internationally available bandwidth. EASSy was part-financed by the World Bank, is owned by a coalition of (mostly) former fixed incumbent telcos, and has a capacity of 4720 Gb/s. A fourth cable, LION2, which connects Mombasa with the island states of Southern Africa, has been built by a consortium including France Telecom and Telkom Kenya and began service in April 2012. It has an overall capacity of 1280 Gb/s.

The advent of these undersea cables, which are illustrated in Figure 2,[8] has dramatically changed the availability of international bandwidth in Kenya.

Figure 2: Submarine cable connections



In its latest quarterly review, for 2Q 2012 (4Q 2011/2012), CCK reports the figures set out in Figure 3 for available bandwidth and bandwidth usage.[9]

Figure 3: International Internet Bandwidth Availability and Usage, 2Q 2012 (Mb/s)

Source	Available bandwidth	Bandwidth usage
SEACOM	308,244	264,426
TEAMS	101,990	
EASSy	122,880	
LION2	40,960	
Satellite	650	158
Total	**574,704**	**264,584**

[8] sourced from http://manypossibilities.net/african-undersea-cables, Creative Commons licence.
[9] http://www.cck.go.ke/resc/downloads/SECTOR_STATISTICS_REPORT_Q4_11-12.pdf

The focus of attention concerning infrastructure has shifted, since the deployment of these cables, to the national backbones of the country's competing telecommunications businesses (Telkom Kenya/Orange, Safaricom, Airtel and Essar), and to government investment in backbone infrastructure. Having invested in the TEAMS cable, the Government of Kenya proceeded to develop a National Optic Fibre Backbone Infrastructure programme (NOFBI), designed to supplement the telcos' networks. The planned network, which is illustrated in Figure 4,[10] is intended to provide capacity to all telecommunications and Internet operators in the market. It was originally managed by Telkom Kenya, but the Ministry of Information and Communications announced in 2011 that it would in future be jointly managed by a team made up of representatives from the Government, Telkom, Safaricom and other ISPs including Jamii and Kenya Data Networks (KDN).[11]

Figure 4: The National Optic Fibre Backbone Infrastructure programme (NOFBI)

National telcos, including Telkom Kenya and Safaricom, have been building new infrastructure to improve and extend their networks, and have begun introducing 3G services to supplement existing GPRS and EDGE services, which have lower Internet capability but still provide access for most mobile Internet users in the country. Trials of later (4G, LTE) technology are also underway. Other improvements in the market since the introduction of technology-neutral licensing in 2008 have included some infrastructure sharing, improving connectivity in rural areas, and more intensive price competition following changes in the ownership and business model of the country's second largest mobile operator.

Although these infrastructure developments have improved available bandwidth, Internet users continue to experience unreliable or slow connections in many areas. This is problematic even in Nairobi – the research team experienced frequent connectivity problems while preparing this report – but is most acute in rural areas. The absence of power networks in many rural areas, and frequent power outages where electricity is available, also reduce the quality of connectivity experienced by users.

While the increasing availability of the Internet through mobile devices has greatly increased individual access over the last two years or so, many Internet users in Kenya rely on access in workplaces, educational

[10] http://www.scribd.com/doc/61206393/National-Optical-Fibre-Backbone-Infrastructure-NOFBI-Routes-27-6-2011.
[11] http://www.itnewsafrica.com/2011/08/kenya%E2%80%99s-operators-access-fibre-optic-network/

institutions and cybercafés. In the short term, it was thought that cybercafé use may continue to grow as interest in the Internet spreads among non-subscribers. Cybercafés are still used by mobile Internet subscribers for some purposes, such as watching video and large downloads. However, there is now evidence that the cybercafé market is in decline. In the longer term, increased personal access is likely to make the cybercafé business model less and less viable, with possible negative consequences for occasional users and those on low incomes.

b. The communications market and licensing framework

The development of a liberalised communications market in Kenya dates back to the Kenya Communications Act 1998, which followed guidelines agreed by the government telco KPTC and the then Ministry of Transport and Communications. This Act divided KPTC into three separate organisations: Telkom Kenya (the renamed state-owned telecommunications business), the Postal Corporation of Kenya, and an independent regulator, the Communications Commission of Kenya (CCK). It also created a policy advisory body, the National Communications Secretariat. As noted above, under this legislation Telkom Kenya retained exclusive rights over the country's international gateway, and so over Internet connectivity, for a five-year period up to 2004.

The 1998 Act separated the communications market into a large number of separately-licensed market segments. This licensing structure became obsolete as technological change and market growth occurred, and CCK began the transition to a technology-neutral licensing regime in 2004, adopting the principle that 'any form of communications infrastructure [may] be used to provide any type of communications service that it is technically capable of providing.'[12] This established a distinction between infrastructure, service and content providers as the basis for future licensing, in place of a distinction based on type of technology. A Unified Licensing Framework based on this approach was formalised following a consultation process undertaken by CCK in 2008 and consolidated in the 2009 Kenya Information and Communications Act.

Three types of licence are available through the Unified Licensing Framework:

- **Network Facilities Provider (NFP) -** Licensees in this category can own and operate any form of communications infrastructure (based on satellite, terrestrial, mobile or fixed technology). This category of licences is subdivided into National NFP and International NFP categories.
    - National NFP licences are further subdivided by spectrum allocation, between Tier 1 licences (exclusive use of spectrum countrywide), Tier 2 (exclusive use of spectrum regionally) and Tier 3 (exclusive use of spectrum by Administrative District).
    - International NFP licences are subdivided into two categories. Investors that wish to land a submarine cable in Kenya require a Submarine Cable Landing licence while those interested in building systems for the provision of international voice/data services are required to obtain an International Gateway Licence.
- **Applications Service Provider (ASP) -** Licensees in this category are permitted to provide services to end-users through the networks of a facilities provider (NFP) or providers.
- **Content Services Provider (CSP)** - Licensees in this category can provide content, information and data processing services.

There is also a licensing structure for terminal equipment providers, BPO providers and public communications centres. The distribution of licensees as at February 2012 is set out in Figure 5.

[12] CCK, *Implementation of a Unified Licensing Framework & New Market Structure*, Consultative Paper, 2008, available at http://www.ictregulationtoolkit.org/en/Publication.3399.html

Figure 5: Communications licences in Kenya

Type of licence	Number
Network Facilities Provider	
Intenational	
International Gateway Systems and Services	13
Submarine Cable Landing Rights	3
National	
National Facilities Provider Tier 1	4
National Facilities Provider Tier 2	17
National Facilities Provider Tier 3	8
Applications Service Provider	92
Content Service Provider	140
BPO Service Provider	32
Public Communications Centre	40

The most important of the licensed operators within the national communications market are the four operators which hold Tier 1 National Facilities licences – the country's four national telecommunications operators. These operators also hold Applications Service Provider licences through which they operate as ISPs. The national telecommunications operators at April 2012 were as follows:

- Telkom Kenya, the former state-owned fixed network operator (KPTC) and still the sole provider of landlines, is owned 51% by France Telecom and 49% by the Government of Kenya. Telkom Kenya provides mobile services through Orange Kenya, in partnership with France Telecom.
- Safaricom, the leading mobile operator, was formed in 1997 as a subsidiary of Telkom Kenya but was part-privatised in 2002 through the sale of 40% of the company to Vodafone. A quarter of the Government of Kenya's remaining shares were made available to the public in 2008, reducing the Government's stake below 50%.
- Airtel Networks Kenya is a subsidiary of the Indian company Bharti Airtel, which is the world's third largest telecommunications company by number of subscribers.
- Essar Telecom Kenya is a subsidiary of another Indian company, Essar Communications.

As noted above, Telkom Kenya is the sole provider of fixed voice lines in Kenya, though there is also a small number of fixed wireless operators, the most significant being KDN and Wananchi. There were about 75,000 fixed terrestrial and 188,000 fixed wireless connections in the second quarter of 2012, amounting to 3.4% of total fixed and mobile subscriptions at that time. Although few in number, fixed lines are important for Internet access in government offices, corporations and cybercafés.[13]

There were just under 30 million mobile subscriptions in Kenya in the second quarter of 2012, though it should be remembered that many people have more than one subscription in order to take advantage of lower on-net prices or ensure wider geographic coverage, so this does not equate to 30 million subscribers. All but 3.4% of these were prepaid subscriptions. A household survey undertaken by Research ICT Africa in 2011 indicated that, in practice, 87% of Kenyans aged over 15 had a mobile phone or active SIM card at the time of the survey. Net additions to mobile subscriptions peaked at the end of December 2011, and have been declining since (to just under half a million in 2Q 2012), suggesting that the market for adult subscriptions is approaching saturation.

While the mobile market is competitive, one of the four mobile operators – Safaricom – is highly dominant within both telecommunications and Internet markets. Safaricom's share of mobile telephony subscriptions in

[13] Figures in this and the following paragraphs are taken from CCK, *Quarterly Sector Statistics*, available at http://www.cck.go.ke/resc/statcs.html, particularly the report for 4Q 2011-2012 (the quarter ending in June 2012).

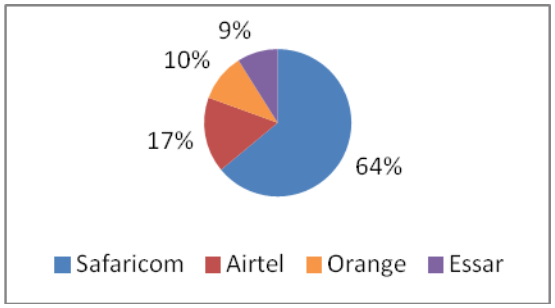
June 2012 was 64% and had fallen only marginally over the previous eighteen months. Its share of telecom voice traffic was even higher, at 79%. Its competitors Airtel, Orange and Essar had subscription market shares of 17%, 10% and 9% respectively, figures which have also remained relatively stable over the previous six months.

Safaricom's position in the ISP market is also dominant. though its dominance has reduced somewhat over the past year. There were 7.7 million mobile data subscriptions in the Kenya market in the second quarter of 2012. In June 2012, Safaricom accounted for 5.26 million Internet subscriptions, 69% of this total (down from 80% six months previously). Airtel, Orange and Essar had 14%, 9% and 8% shares in mobile data subscriptions, with Airtel and Orange gaining market share over the last six months.

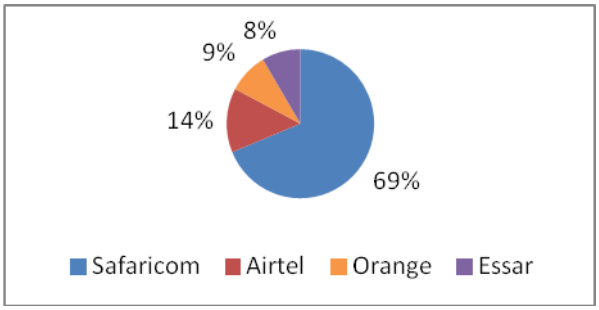
The distribution of market shares among these four operators in June 2012 is illustrated in Figure 6. Other companies involved in the telecommunications and ISP markets in Kenya, in market segments such as wholesale capacity and corporate services, include Kenya Data Networks (KDN), Jamii and Wananchi.

Figure 6: Mobile and ISP market shares, 2Q 2012

Mobile subscriptions



Mobile data subscriptions



c. Access to and usage of the Internet

Assessing the number of Internet users in developing countries is notoriously difficult, as many people rely on cybercafés, workplaces, educational institutions and other public facilities for access, and different multipliers have been used in different countries for (*e.g.*) the number of users per cybercafé. A study for CCK in 2007 suggested that its previous estimate of 1.5 million users at that time should be raised to 2.7 million, over 80% of them in Nairobi, by using different multipliers.[14] That study envisaged that there would be 8 million Internet users in 2012, but it interpreted 'use' to include any use of the Internet during the preceding twelve months. That is a very partial interpretation of Internet use today.

Figures for current Internet subscriptions are published quarterly by CCK on the basis of data supplied by communications operators. The latest published figures, for the second quarter of 2012, indicate that there were more approximately 7.74 million Internet subscriptions at that time, of which 7.66 million (over 99%) were mobile subscriptions. Both of these figures had increased by 19% over the previous quarter, and by more than 80% over the position twelve months previously – high rates of increase. They represent a subscription density today of some 18% of the population, or 33% of the population aged 16 and over.

From these figures for Internet subscriptions, CCK estimates that there were a little over 14 million Internet users in Kenya in June 2012, equivalent to 34-35% of the total population. This figure is derived through multipliers that were initially adopted following the Internet market study undertaken in 2007 and

[14] http://www.cck.go.ke/resc/downloads/Final_Internet_market_analysis_report.pdf, p. 8

subsequently revised. These now assume that each mobile subscription represents 1 user while each terrestrial wireless subscription has 10 users and each DSL, fibre or satellite subscription has 100 users. It is impossible to validate these multipliers. The resulting estimates should be treated with greater caution than they receive in business information reports and other publications. However, a recent reduction in the multiplier used for mobile connections from 2 to 1, following recommendations by the ITU, may have improved their accuracy.

The number of Internet subscriptions recorded by CCK is, therefore, growing rapidly. The growth rate in subscriptions in the three and a half years to the end of 2011 is illustrated in Figure 7.

Figure 7: Rate of growth in Internet subscriptions

The predominance of mobile subscriptions among overall Internet subscriptions is overwhelming, but not unusual in sub-Saharan Africa. The high rate of growth in the number of Internet subscriptions during the last year to eighteen months partly reflects the increasing availability of more advanced feature phones and smartphones which are better equipped for Internet access. It is, however, not clear whether all of these recorded subscriptions are actually being used for Internet access. It may be that these include Internet-enabled phones which are not or are only very rarely used for Internet.

As noted above, these figures suggest that the total number of Internet subscriptions in June 2012 was equivalent to around 18% of the population, up from a little over 10% one year previously. The change in multiplier used for estimating the number of Internet users (see above) means that it is not possible to establish a reliable trend for growth in that indicator. The level of Internet access is nevertheless still well below that of mobile telephony, the number of subscriptions for which had reached 29.7 million (a density of about 69% of total population and more than 100% of the adult population) by June 2012. The number of Internet subscribers was also significantly below the number of subscribers to (SMS-based) mobile transaction services, which exceeded 18 million as early as September 2011.

The number of broadband subscriptions, still defined by CCK as any speed of 256 Kb/s or above, has increased markedly in the past six months, from a very low figure of 132,000 subscriptions in December 2011 to around 727,000 in June 2012, about 9.4% of total Internet subscriptions.

Because the large majority of Internet subscriptions are prepaid mobile subscriptions, it is difficult to give an accurate assessment of the geographical distribution of Internet access. However, it is clear from the evidence available, some of which is reported below, that access and use are most common in Nairobi, less common in other major cities, and least common in rural areas. This geographic distribution of access and usage is not unusual in developing countries, and is associated with a number of factors that encourage or inhibit Internet

use – the availability and reliability of communications and power networks, the distribution of complementary equipment (computers and other devices), relative income and educational attainment levels, and patterns of networking behaviour.

The price of Internet service is an important factor in determining usage levels, particularly for lower-income groups. Figure 8 gives examples of the price of monthly access available from a number of ISPs as at April 2012 (the exchange rate in late April 2012 was US$1 = 85/-).

Figure 8: ISP tariffs, April 2012

COMPANY	PACKAGE	SPEEDS	PRICING
Africa Online Kenya.	InfiNet Pro	Up to 256 Kbps speeds (Max)	Monthly Charge od 19,999/- + 16% VAT
	InfiNet Classic	Up to 128Kbps speeds (Max)	Monthly Charge of 7,999/- + 16% VAT
	InfiNet Lite	Up to 128 Kbps speeds (Max)	Monthly Charge of 3,447/- + 16% VAT
Orange Kenya	Broadband Plus	up to 256kKpbs downloads and 128Kpbs uploads per month	Kes. 5,990/- per month
	Broadband Turbo	up to 512Kpbs downloads and 128Kpbs uploads per months	Kes. 10,990/- per month

The introduction of data bundles for prepaid mobile customers has encouraged use of mobile Internet, particularly the use of mobile access for prolonged periods (a quarter of mobile users in a recent Google survey, reported below, said that they used the Internet for periods above an hour). Safaricom, for example, in April 2012 offered bundles, valid for 30 days, which ranged in price from 100/- for 50MB (2/- per MB) to 15000/- for 30GB (0.49/- per MB), as well as unlimited mobile Internet access at 1000/- for seven days and 3000/- for 30 days.[15]

Several studies have been published recently concerning Internet preferences and user behaviour in Kenya. Data collection for these studies dates back to 2009, 2010 and 2011, so aggregated numbers are likely to be out of date, but they still provide useful pointers to trends in the national Internet environment.

A study of Internet users undertaken by the polling company Synovate in 2009,[16] found that daily use of the Internet had increased substantially since 2007, from 2% to 5% of survey respondents. Access by mobile phone was growing rapidly, at the expense of public access facilities, while social networking and entertainment uses had overtaken email at the top of users' priorities: indeed, 25% of Internet users in the survey did not have an email address. Young people and more educated social groups were found to use the Internet more than other social groups, while use of the Internet at least once a month was much more common among urban (30%) than rural (9%) dwellers. 60% of users questioned at the time regarded the Internet as affordable, and the average length of time spent online was just over an hour.

Preliminary results are now available from a much more recent household survey of ICT access and usage undertaken by Research ICT Africa in Kenya and eleven other African countries during 2011.[17] Further findings from this survey will be published shortly, but these preliminary results indicate that:

[15] http://www.safaricom.co.ke/index.php?id=241
[16] reported at http://www.scribd.com/doc/36556234/The-Digital-Divide
[17] http://www.researchictafrica.net/docs/RIA%202011%20ICT%20survey.pdf

- Household computer access in Kenya has risen since the previous RIA survey in 2007/8 from 5.5% of households to 12.7%, with declared Internet access rising from 2.2% also to 12.7%. This compares with household access rates of 54% for television and 81% for broadcast radio.
- Overall, 26% of Kenyan adults in the sample reported using the Internet, of whom 78% reported accessing it on mobile phones and 72% at cybercafés within the last twelve months. Around a third reported accessing the Internet within the last year at work, an educational establishment or a friend's home.
- As noted above, 87% of adult individuals (aged 15+) had a mobile phone or SIM card. Of these, 32% reported that their phone was capable of browsing the Internet, 25% reported using their phone for Internet browsing, 25% for social networking and 20% for emails.
- Just over 21% of adult respondents (15+) reported using one or more computers, of whom 69% accessed computers in cybercafés, 56% at home, around 40% each at work or educational institutions, and 46% at friends' homes. Of these computer users, 89% reported using them to browse the Internet (the highest figure in any of the countries RIA surveyed).
- Among Internet users in the sample, just over half (53%) reported using the Internet daily. The large majority had an email address (88%) and used a social network (81%; in practice, this will be mostly Facebook, though LinkedIn and Twitter are also frequented by Kenyan Internet users).
- Among respondents who did not use the Internet in the Kenyan sample, the most frequently cited reasons for non-use were ignorance of how to use it (81%), lack of computer and/or Internet connection (78%) and cost (65%). Over 50% of non-users also cited lack of interest or knowledge of the Internet itself.

Another recently published study, part of Google's InsightsAfrica project, is based on interviews with more than a thousand Kenyans in 2010/11, and was conducted alongside comparable studies of five other African countries.[18] The following are among the findings concerning Kenyan respondents in this study.

- 49% of those interviewed in Kenya had used the Internet, about a quarter of whom had done so for the first time during the previous year.
- 82% of Internet users reported that their use had increased during the previous year, 48% that it had increased considerably.
- Of those interviewed – notably in 2010/2011 rather than more recently – 45% used only a PC for access, 26% only used a mobile, and 29% used both modes of access. Figures for mobile Internet have clearly increased since then.
- Of those who used PCs for access, just under half used cybercafés, the remainder accessing the Internet at work or home.
- The most frequent location for use of mobile Internet was the home (81%), with only 7% saying that their most frequent location was on the move. This confirms evidence from other sources that mobile Internet is being used as a principal mode of domestic access rather than as a supplementary mode of access.
- There was a significant difference in the primary purpose of use between mobile and PC access. Social networking was identified as the primary use of mobile Internet by 50% of users, compared with 25% for browsing and searching and 13% for email. The comparable figures for PC use were 14%, 44% and 31%.
- 61% of mobile Internet users said that they accessed the Internet more than once a day, compared with 40% of PC users. The average length of time spent online per session was lower for mobile users, but 25% reported their usual mobile Internet session times as longer than one hour.
- The principal drivers of Internet use identified by users were consistent between those using PC and mobile modes of access. Lower costs were identified as important drivers by more than half of users, while about a third cited each of easier access, more relevant content, better access speeds and greater reliability.

[18] This study is reported graphically at http://www.insightsafrica.com/#!place=category&cat=Internet+Usage&qid=52030&filter=Kenya. A precise number is not given for the number of Kenyan participants, but there were a total of 13,000 interviews in the six countries concerned.

- The principal barriers to Internet use identified by non-users were lack of knowledge (87%), poor access (85%), lack of interest and time (76%), cost (66%), lack of relevant content (46%) and 'inappropriate' content (35%). Email was the service in which most non-users said they were most interested (65%), but there was also a high level of interest in searching and social networking (both around 50%).
- Survey reports of content accessed need to be treated with caution, as people do not necessarily report usage activity accurately in interviews. In this survey, the content which people said was of most interest to them was news and entertainment (around 85% each), followed by sport (70%), research and local information (about 60%).

Finally, a focus group study of mobile Internet users in Nairobi, Kisumu and Nyeri in autumn 2010 looked at the usage patterns of early adopters of mobile Internet in the general population (middle ranking managers, shopkeepers, taxi drivers, young people). It found very high levels of use, among these early adopters, of social networking sites, particularly Facebook. Spurred by flat rate daily rates for mobile data, many of these users reported heavy use of mobile Internet, including use as a default pastime activity, while some reported their behaviour as 'addictive'.[19]

The high volume of Facebook use reported in this study is consistent with data reported by website monitoring sources for both Kenya and other countries. The Google survey cited above showed that social networking was the most common Internet activity among mobile Internet users, while it remained secondary to browsing and searching for PC Internet users. Two other sources provide useful evidence on this. Alexa reports overall website traffic country by country,[20] while Opera reports on websites accessed in some countries, including Kenya, using its mobile browser Opera Mini.[21]

The latest data from these two sources show that the most popular websites in Kenya are those listed in Figure 9, which also lists other .ke websites within the top 30 within the country (.ke sites are shown in red).

Figure 9: Most popular websites in Kenya, June/July 2012

Rank	Alexa World rankings	Alexa Kenya rankings	Opera Mini Kenya rankings
1	Facebook	Google	Facebook
2	Google	Facebook	Google
3	YouTube	Google Kenya	Twitter
4	Yahoo!	Yahoo!	Waptrick
5	Baidu	YouTube	Tagged.com
6	Wikipedia	Twitter	Eskimi.com
7	Windows Live	Blogspot	Goal.com
8	Twitter	Wikipedia	BBC
9	QQ.COM	LinkedIn	Daily Nation
10	Amazon	Daily Nation	Wikipedia
11	Blogspot	The Standard	
12	LinkedIn	Babylon	
13	Taobao	MyWebSearch	
14	Google India	BBC	
15	Yahoo! Japan	Windows Live	
17		Mocality	
19		Safaricom	
21		OLX	
24		Orange Kenya	
25		Capital FM	
29		Ghafla!Kenya	
30		Rupu	

[19] David Souter, 'Mobile Internet usage and demand in Kenya: The experience of early adopters' in Diane Coyle, ed., *Making Broadband Accessible to All*, Vodafone, 2011.
[20] http://www.alexa.com/topsites
[21] http://www.opera.com/smw/2012/06/

As this table indicates, most of the most popular sites in Kenya are generic platforms – search engines (Google, Yahoo!), social networks (Facebook, Twitter, LinkedIn) and information/entertainment sites (Wikipedia, YouTube). Although these are global generic sites, four (Facebook, Twitter, YouTube, LinkedIn) are widely used for sharing information within personal communities, and so can just as properly be considered sources of local content, while two are used for email and instant messaging as well as searching (Google, Yahoo!). It is notable that the local .ke variant of Google is now accessed frequently, though still less often than the global site. The most popular .ke sites apart from Google, according to Alexa, were those of the newspaper groups that publish the *Daily Nation* and the *East Africa Standard*, but the number of other local sites within the top 50 has grown considerably over the last six months. There are now 9 .ke domains in the top 30 listed, including sites belonging to communications companies (Safaricom, Orange), entertainment providers (Capital FM, Ghafla!) and e-commerce businesses (OLX, Rupu).

d. Government policy towards the Internet

The final section of this chapter is concerned with the Government's policy framework to make use of the Internet for national social and economic development.

The starting point for this today is Kenya's new (2010) Constitution, which has restructured the country's political and administrative framework, not least by devolving a great deal of power to new local government entities, and which sets out some core principles of governance. These include constitutional commitments in favour of the privacy of communications, freedom of expression and free media, which are derived from the *Universal Declaration of Human Rights*.

The Government's overall strategy for national development is set out in its *Vision 2030* document, which was agreed in 2007. Its objective is for Kenya to become a 'globally competitive and prosperous country with a high quality of life by 2030.' It rests on three pillars of economic, social and political development with ambitious targets for developmental progress, including an anticipated 10% rate of growth in GDP *p.a*. from 2012. The ICT sector features in this vision for national development, with a particular emphasis on business process outsourcing (BPO), subsequently redefined in development planning documents in the more extensive term 'IT-enabled services' (ITES).

Vision 2030 has been developed in the first of what is intended to be a series of five-year development plans, the *Medium Term Framework (2008-2012).* This identified a number of ICT developments underway at the time it was agreed as having significant potential for Kenya – the forthcoming landing of submarine cables and the proposed national fibre optic backbone project, as well as the plans of the ICT Board for a BPO park and digital villages. These are seen as important in enhancing national competitiveness, developing a 'knowledge-based society' and creating employment opportunities. It also promised a review of the 2006 Telecommunications/ICT Sector Policy (see below).

A significant part of the responsibility for delivering these ICT-enabled development objectives lies with the ICT Board, which was established in 2007 to promote Kenya as a destination for business process outsourcing, build ICT capacity within the country, and manage other ICT-enabled development interventions. E-government is also a prominent feature of government policy, first described in the *E-Government Strategy* of 2004. The roles of the ICT Board and the Directorate of e-Government are discussed in Chapter 3B. The most eye-catching current project of the Ministry of Information and Communication and the ICT Board is the development of a technology city at Konza in Machakos County – a US$14.5bn project which is presented as a driver for the growth targets established in *Vision 2030*.

Although Kenya has an agreed national ICT policy, this dates from 2006, long before the Internet reached its current form and importance, and has long been in need of renewal. The Ministry of Information and

Communications has been working to a *National ICT Sector Masterplan* for the period from 2008 to 2012, agreed in 2006, which is now reaching the end of its term. The objectives of this plan were to:

- enhance national competitiveness through the promotion of the BPO sector;
- develop a 'knowledge-based society';
- ensure digital access through a programme of 'digital villages'; and
- strengthen the country's capacity to meet future technological challenges.

The period since this Plan was agreed has seen major changes in many aspects of the national ICT environment, including the landing of undersea cables, new investment in terrestrial infrastructure, and the rapid development of mobile transactions, mobile Internet and social networking. Preparation of a new *National ICT Master Plan* has been led by the ICT Board with the involvement of three other government agencies – the Ministry of Information and Communications, CCK and the e-Government Directorate – and one business association, the Kenya Information Technology and Outsourcing Society (KITOS). The following paragraphs summarise key points from the February 2012 draft of the MasterPlan. The final text of the revised Plan has not yet been published.

The vision and mission of the draft MasterPlan are to make Kenya 'a world class centre of excellence in ICT,' and 'to develop Kenya as a globally competitive and prosperous nation by creating an enabling environment that encourages and enhances the development, expansion and use of ICTs.' ICTs are considered crucial to socio-economic development, but their impact is seen to be constrained by a number of factors, including limited infrastructure and services in rural areas, the limited availability and high cost of broadband connectivity, and lack of confidence and capacity in the use of ICTs. To address these challenges, the Plan identifies a number of objectives which can be summarised as follows:

- development of an enabling framework that will foster ICTs' contribution to the fulfilment of *Vision 2030*;
- universalisation of ICT access and capabilities;
- development of Kenya's status as a regional centre of ICT activity and as a provider of business outsourcing and IT-enabled services;
- establishment of a culture of cybersecurity, including consumer protection; and
- the use of ICTs to enhance the functioning of government.

Subsidiary goals are identified in other governance areas, including the reduction of poverty and corruption; improvements in education, health and agriculture; stimulation of enterprise and employment; the stimulation of local content; and the promotion of industries such as tourism.

The draft *Master Plan* sets out guidelines for the broadcasting, telecommunications and postal sectors. In the case of telecommunications, it roots national policy and national aspirations for consumer choice and investment in a competitive environment (supported by open access regulations and infrastructure sharing, the encouragement of public-private partnerships and infrastructure deployment by transport and power utilities, and the establishment of universal access mechanisms aimed at ensuring that all citizens have access to ICT services, including Internet, at an affordable price).

The draft plan identifies four priority areas for 'proactive intervention' in order to maximise ICTs' role in national development. These are:

- the development of infrastructure towards universal affordable broadband – to which a number of other objectives are attached, including spectrum management, emergency telecommunications, child protection and environmental sustainability;

- developing a culture of cybersecurity and building trust and confidence in ICTs – to which, likewise, a number of other technical objectives are attached, including e-government applications and IPv6 migration;
- establishment of an enabling environment for ongoing ICT development – including areas such as communications regulation, harmonisation of regulatory practice and the transition to new generations of wireless technology;
- capacity-building – including training in network security and new technologies, and measures to ensure the gender and other social inclusivity of the evolving information society.

A more detailed list of priority targets includes the following which are especially relevant to the Internet:

- achievement of the WSIS connectivity goals for citizens, communities and public facilities at broadband speeds (which were not envisaged when the WSIS goals were agreed in 2003);
- strengthening of the legal and regulatory framework, including harmonisation with international practice, legislation on freedom of information, data protection and child protection, measures to protect consumer rights, and steps to ensure that regulation keeps pace with convergence;
- promotion of broadband 'as an instrument of economic development', including through greater competition between telecoms operators, the expansion of high-speed broadband to all counties, and 'more affordable Internet connection prices';
- the development of applications in ICT4D, including priority for e-government.

These objectives are to be supported by a range of fiscal and other economic incentives, including duty free zones, ICT parks and incubation centres, encouragement of the national software industry and the promotion of Kenyan ICT products and services to export markets. Strong attention will be paid to BPO and IT-enabled services with the aim of making Kenya 'the "preferred Gateway" to East Africa and Africa, including 'a comprehensive branding strategy … to attract the top names in ICT to Kenya….' The plan identifies the importance of both e-commerce and m-commerce, and both e-government and m-government, recognising the migration of users and applications from PCs to mobile phones. Finally, specific chapters of the plan set out objectives for the use of ICTs in education, health, agriculture and environmental management.

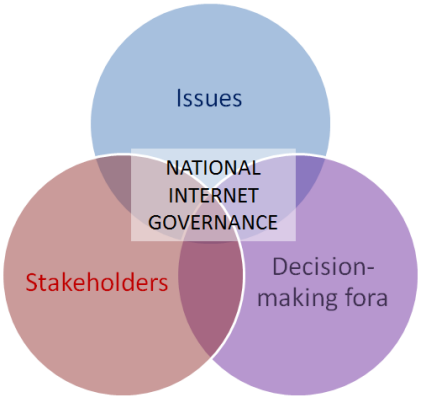
CHAPTER 3: MAPPING INTERNET GOVERNANCE IN KENYA

This, the main section of the report, is concerned with the current state of play in Internet governance in Kenya. It discusses, in turn:

- the most significant **issues** in Internet governance today within the country (**Chapter 3A**);
- the principal **stakeholders** in Internet governance at national level (**Chapter 3B**);
- the decision-making **processes** and fora which are currently involved (**Chapter 3C**); and
- **perceptions** of the Internet governance environment among informants for this study (**Chapter 3D**).

These represent the three principal dimensions of Internet governance, whose interlocking nature is illustrated by the Venn diagram in Figure 10, which is taken from the ISOC assessment framework.

Figure 10: An assessment model for national Internet governance environments



The analysis in this Chapter of the report is derived from desk research; observation and participation in the communications and Internet sector within Kenya over the past decade; interviews and discussions with and contributions from policymakers, businesspeople and observers who are engaged with the Internet within the country; and a review of discussions at the 2012 Kenya IGF. The description and assessment concentrate on major themes rather than trying to be comprehensive. They seek to give an overall picture of the current state of play, which can help stakeholders and outside observers grasp the institutional framework and trends in governance, rather than describing the minutiae of current technical or public policy debate, or commenting on every issue that was mentioned in research. These broad characteristics and trends are then translated into a framework and maps of the national Internet governance environment, which form the basis for recommendations to national stakeholders and to ISOC.

Kenya is regarded within the international Internet governance community as one of the leading developing country participants in the field. This reputation stems from a number of factors. Kenya participated much more prominently in the World Summit on the Information Society than most African countries, and included non-governmental stakeholders in its delegations to that Summit. Its government has given prominence to ICTs and the Internet in national development planning, and its legal and regulatory framework is seen as having fostered innovation (most notably in mobile banking and transactions). It was Kenyans that initiated the first national and regional IGFs, providing a model that is increasingly followed in other world regions. Government, business and civil society representatives from Kenya participate actively in global Internet governance meetings, and the country has recently hosted global meetings of both ICANN and the IGF. As a result, Kenyan participation in global Internet governance is at least as prominent as that of any other African country. It therefore provides a useful benchmark for assessing activity in other countries on the continent.

The following analysis is divided into four separate sections.

Chapter 3A describes the most important issues of Internet governance in Kenya which can be identified from discussions, interviews and questionnaire responses, and from desk research undertaken for the report. It starts by discussing issues that are primarily concerned with technical aspects of the Internet, followed by issues concerned with the interface between the Internet and the telecommunications infrastructure, and then by issues of wider public policy with which the Internet intersects. This chapter ends by providing an outline map of major Internet governance issues under discussion today in Kenya, summarises how these issues have changed over time, and suggests other issues which may become important in the short to medium term.

Chapter 3B is concerned with stakeholder participation in Internet governance and public policy issues in Kenya. It uses a taxonomy of Internet stakeholder communities derived from WSIS and IGF experience – government agencies, the private sector, the Internet technical and professional community, and civil society – as a basis for exploring stakeholder groups within these four broad categories. The text describes which organisations and individuals play a part in Internet governance debate and which have an interest in the outcomes of Internet governance but do not currently participate significantly. It concludes by mapping the multistakeholder environment and juxtaposing this against the mapping of Internet governance issues described above.

Chapter 3C focuses on decision-making processes and fora. There is significant overlap between this and the two preceding sections, but there are also additional processes and fora which need to be added to the discussion. As well as describing national decision-making, this Chapter considers discussion fora – particularly the Kenya Internet Governance Forum – and summarises Kenyan participation in regional, continental and global decision-making processes concerned with the evolution and use of the Internet. It ends with a further mapping exercise, which juxtaposes these findings about decision-making processes against the earlier findings concerned with issues and stakeholders.

Chapter 3D reviews perceptions of the Internet governance environment as a whole, as revealed in interviews, discussions and responses to a pilot questionnaire which was administered online to a selected group of informants during the research.

These four analytical chapters are summarised, and recommendations made to national stakeholders and ISOC, in Chapter 4 of the report.

CHAPTER 3A: INTERNET GOVERNANCE ISSUES IN KENYA

a. Overview

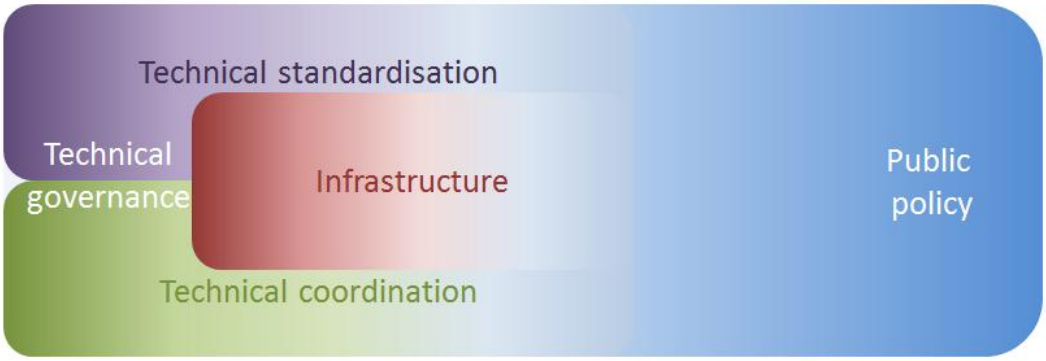
Internet governance issues provide the best starting point for exploring national Internet governance environments. This chapter aims to identify and describe the range of technical and public policy issues which are considered important by Kenyan stakeholders and discussed in Kenyan decision-making processes. This will help to establish the 'meaning' of Internet governance as it is understood and practiced in Kenya.

The term 'Internet governance' is used in international discourse to describe a wide variety of issues, which includes:

- Internet-specific **technical issues**, which are largely determined by Internet professionals working within Internet specialist fora (such as, at global level, ICANN, the IETF and W3C);
- issues concerned with the relationship between the Internet and its underpinning **infrastructure**, which are largely determined by businesses and regulatory agencies within the telecommunications sector; and
- issues of wider **public policy** which are substantially impacted by the Internet but which are primarily governed by national and local agencies that are explicitly concerned with those other domains (such as education ministries or the police) and which see themselves as lying outside the communications sector.

In practice, most of the issues with which Internet governance is concerned have both technical and public policy dimensions, and involve both decision-makers who work primarily within the Internet environment and those who are primarily concerned with public policy domains. Some of the most challenging issues of Internet governance are those in which the Internet changes the boundaries of what it is possible for stakeholders to do, or where the global nature of the Internet enables individuals and organisations to bypass established national laws. This continuum is illustrated in Figure 11, taken from the ISOC framework, in a form which will be used later in this section to map the issues of most significance in Kenya today.

Figure 11: Technical governance and public policy



Different issues of Internet governance are of more or less significance in different contexts – in different countries, and at different points in time within those countries. The following paragraphs identify and describe the issues which emerged as being of significant importance in Kenya as a result of desk research, interviews and discussions with key informants, and in responses to a pilot questionnaire which were received from selected respondents. Two preliminary observations should be noted before these are described.

Firstly, in any Internet governance context there is likely to be a relatively small number of issues that are considered of serious importance at any given time. This is particularly so where a wide range of stakeholders is concerned. Different issues have different levels of perceived importance (or salience) in different stakeholder groups. Highly technical issues such as the deployment of IPv6, for example, are much more likely to be perceived as important within the technical community than amongst the general public. This is a natural outcome of different levels of awareness and understanding. Some public policy issues, by contrast, such as child protection and the risk of online fraud, attract high levels of attention in the general public and from politicians. Relatively few issues attract substantial attention across the whole stakeholder spectrum. This report concentrates on these and on those more specific issues which are considered highly important by particular stakeholder groups, though some issues of less significance that were raised by informants are also mentioned.

Secondly, there is a clear distinction to be made between large-scale issues of lasting significance within Internet governance debate, of the kind just described, and 'issues of the moment' that gain high profile or are discussed in depth for a short period of time on Internet-specific discussion lists. To illustrate: The lengthy discussions which took place in Kenya about the deployment of international submarine cables in the first decade of the century exemplify a large-scale issue of lasting significance – one which has now evolved into a discussion of how to make most effective use of the capacity available through the cables which have been deployed. The impact on the Internet in Kenya of the accidental cutting of the TEAMS cable in February 2012 exemplifies an 'issue of the moment' – something which was a major short-term preoccupation for the country's Internet community. A short-term issue like this may raise more lasting questions, for example in this case about network redundancy and contingency planning. A number of these arose during the research, and are mentioned in the following discussion.

As well as asking informants about priority issues as they saw them, the researchers explicitly sought views on four specific issues. These were:

- the introduction of IPv6;
- the management of the national ccTLD;
- the development of broadband infrastructure; and
- issues of cybersecurity.

These issues were selected for two reasons. They are significant aspects of Internet governance in all national environments, and so provide a useful basis for comparison between governance arrangements in different countries. They have been identified for this purpose in the ISOC framework. They also cover the spread of technical and public policy issues illustrated in Figure 11 above.

The findings of this Chapter can be very briefly summarised as follows. Cybersecurity, which raises substantial technical issues of Internet governance as well as having wide-ranging public policy implications, was the theme most frequently raised by informants when asked to identify the most important challenge of Internet governance in Kenya today, closely followed by issues of access and affordability. The most significant technical issue raised in the research, almost entirely by members of the technical and professional community, was the deployment of IPv6.

The following paragraphs look in turn at:

A. issues of technical governance;
B. issues concerned with access and infrastructure; and
C. issues of wider public policy

The specific issues which are discussed below are summarised in the framework table in Figure 12. This will be used in conjunction with the mapping exercise of issues, stakeholders and processes later in this Chapter and in Chapters 3B and 3C.

Figure 12: Summary of major national Internet governance issues in Kenya

Governance area	Issue
Technical	Deployment of IPv6
	Deployment of DNSSEC
	Cloud computing
	Management and marketing of the .ke domain
	Peering through IXP
Access and infrastructure	National broadband infrastructure
	Local access networks
	Universal service policy
	Mobile Internet versus fixed access
	Network quality and reliability
	Spectrum availability and management
	Affordability, including termination rates
	Competition in telecoms markets
Public policy issues	Social and economic development
	Economic growth and poverty reduction
	BPO and IT-enabled services
	E-government
	Cybersecurity
	Government data and websites
	Consumer issues and fraud
	Criminality and terrorism
	Privacy and surveillance
	Local content
	Open data
	Capacity-building
	Behavioural issues (including child protection)
	Freedom of expression and rights issues
Governance arrangements	Technical discussion spaces
	Role of national IGF

Two issues of global rather than national importance were discussed, following presentations on them, at the Kenya IGF meeting in July 2012 – the outcome of ICANN's process to invite proposals for new global top level domains (gTLDs) and forthcoming revision of the ITU's International Telecommunication Regulations (ITRs). Both of these could be considered 'issues of the moment'. Although occasionally mentioned during the research conducted earlier in the year, these were not often raised by stakeholders during that research, and discussions at the subsequent IGF could be seen as awareness-raising exercises rather than responses to significant existing stakeholder interest in them. Presentations on these at the national IGF tended to emphasise African as much as Kenyan positions on them.

b. Issues of technical governance

Issues of technical Internet governance – such as the application of standards or the management of national domains – are likely to be familiar only to those who have specific responsibilities for managing or delivering Internet services: Internet technical and professional specialists, government agencies responsible for regulating communications or delivering Internet-enabled services, and businesses in the telecommunications and Internet sectors. Consumers generally take little interest in technical issues unless they obviously affect the service they experience: they are interested, as one informant put it, in the Internet, not which variant of the Internet Protocol is being used to meet their needs.

The one issue of technical governance which was consistently raised by more technically-minded informants as a priority in Kenya – if not an urgent one – was the implementation of IPv6. Opinion was divided on its importance and, especially, immediacy. Few informants, even in the technical community, felt that there was an urgent requirement to move towards IPv6: there was a widespread feeling that there was, in practice, still a significant amount of IPv4 number space available and that it would be several years before the situation became critical. There was, however, a sense among technical specialists and in some businesses that things could and should be moving faster towards deployment, not least because faster progress could help Kenya gain an advantage over regional competitors and keep pace with innovations in the industrial world.

Some informants were critical of the visibility and vigour of the task force set up by the government to promote adoption of IPv6 in 2008 (see Chapter 3C). Others were critical of the way in which telecoms operators have been handling IPv6, arguing that they have deployed it in their networks rather than making it available to or promoting its use by users. While, as noted, most Internet professionals interviewed did not have any sense of urgency about IPv6, there was a feeling that more could be done to raise awareness among businesses and users of its potential, and particularly of the importance of ensuring that they and their equipment is IPv6-ready. Lack of awareness in the business community did seem to be significant.

A few technical informants also raised deployment of DNSSEC (Domain Name System Security Extensions) as a technical priority. DNSSEC seeks to address some of the security challenges arising from the original design of the domain name system. This issue was considered significant among the most technically proficient informants interviewed, but is clearly a specialist technical rather than more general concern. KENIC's strategic plan includes the development of a test bed and implementation of DNSSEC.

Management of the .ke ccTLD was the other technical issue regarded as significant by some informants. The Kenyan national domain is considered by some to be something of an African success story. KENIC, which manages the domain, was praised by a number of informants as an efficient and effective national registry, and received the most positive rating out of ten aspects of Internet governance whose performance was rated by respondents to the project questionnaire (see Chapter 3D). It is overseen by a board made up of representatives from CCK, the Kenya Information Society (KIS), KENET, TESPOK, the National Task Force on Electronic Commerce and the Directorate of Government IT Services (on which see Chapter 3B). By April 2012 it had raised the number of .ke registrants, to almost 23,000 (up significantly over the figure a couple of years previously), of which more than 20,000 were .co.ke registrations. KENIC claims that this puts .ke second only to South Africa's .za in sub-Saharan Africa.

Quite a few informants felt that use of the Kenyan ccTLD is something of a patriotic duty and that efforts should be made to improve its branding – a feeling shared within KENIC, which is devoting significant resources to marketing the national domain. It is used by government departments, and a number of Kenyan businesses have migrated from gTLDs such as .com to .ke.[22] However, it is clear that .ke does not yet have the positive brand value that is associated with some other national domains – especially .za, which has more than 700,000 registrations, or.uk, which recently surpassed 10 million.

However, a number of concerns and criticisms were also raised. These included the following:

- Concerns have been expressed about the management of KENIC, particularly staff shortages and turnover. It is a small organisation, and so high turnover of expertise could be a problem.
- There has been uncertainty about the performance and (in some cases) integrity of registrars, of which there are more than 200, many of which have only a few registrants.

[22] KENIC's strategic plan for 2011-2013 is at http://www.kenic.or.ke/files/KENIC_FINAL_Strategic_Plan_2011-2013.pdf

- Informants commented that the cost of .ke registrations was higher than that of a gTLD domain. However, while there is a price disadvantage, the sums involved are hardly sufficient to be much of a disincentive if there are concomitant advantages. More than sixty registrars have now committed with KENIC to market .co.ke domains at no more than 1500/- (US$18) plus VAT. Some other domains are cheaper.
- Trademark and brand protection issues were seen as (at least potentially) increasingly important, putting pressure on arrangements for dispute resolution.
- Changes in arrangements for global TLDs, including the introduction of domains such as .africa, may lead to greater competition for the .ke brand.

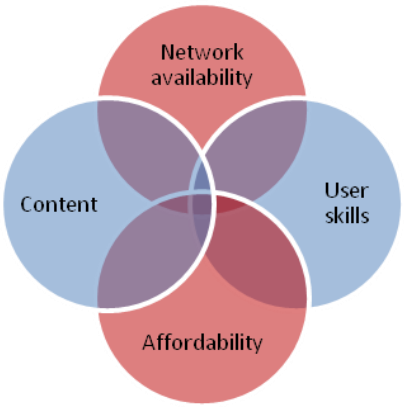
Although there has long been an Internet Exchange Point (IXP) in Kenya, enabling ISPs to exchange national traffic locally, there is no East African IXP, enabling local exchange of traffic within the region (see Chapter 1 and Chapter 3B). The development of an EAIXP is seen as desirable because of the potential cost savings involved, and is being discussed by a regional task force of the East African Community's regulators' and operators' association EACO.

c. Issues concerning infrastructure and access

The Internet is made available through communications infrastructure which is also used for other purposes and which is largely managed within the telecommunications sector. Access to infrastructure has been a core preoccupation of telecommunications policy since at least the early days of telephony. Its central themes – the geographical availability of networks, and the affordability of using them – were at the root of universal service obligations in the monopoly era, were core objectives of sector liberalisation in the 1980s and 1990s, and remain central to competition policy and market regulation. Even today, the quality and affordability of access to high speed Internet is a defining objective of communications policy in Europe and the United States, where access to basic telecommunications has long been near-ubiquitous.

Access to telecommunications networks (in terms both of availability and affordability) is therefore crucial to Internet access, but it is insufficient in itself to make that access meaningful, for which two other factors are also necessary. Discussion of access to the Internet in developing countries such as Kenya has often revolved around the four factors illustrated in Figure 13.

Figure 13: Aspects of access to the Internet



All four of these are needed in order to achieve meaningful 'access' for end-users, and all four are significant within discussion of Internet governance and public policy in Kenya today. The following paragraphs describe perceptions concerning the geographical availability, technical adequacy and affordability of networks – the

classic telecommunications regulatory agenda. Issues of content and user skills or capabilities are discussed in the following section which is concerned with issues of wider public policy.

Until about three years ago, most discussion about access to the Internet in Kenya focused on the absence of submarine cable connectivity, consequent reliance on satellite connections, resulting deficiencies in bandwidth and high consumer prices. The shortage, cost and unreliability of bandwidth were seen as major barriers to widespread Internet access and use, and to the potential economic gains that could be made by businesses making use of the Internet. The arrival of submarine cables in 2009ff has transformed the availability of international bandwidth (see Chapter 2) and has shifted discussion about infrastructure to a new agenda – how to ensure:

a. that the international bandwidth now available is distributed throughout the country;
b. that the cost reductions of competitive international bandwidth are passed on to consumers (something which did not seem to be happening immediately after the landing of the first two cables); and
c. that the country makes use of the bandwidth now available to achieve socio-economic gains (a preoccupation of government policy, but also significant for telcos seeking to maximise returns on networks).

The difference in Internet experience between Nairobi and other parts of the country was a significant factor in discussions about infrastructure. A number of informants said that they felt the Internet was still largely a Nairobi phenomenon, that it had not penetrated deeply into the country as a whole, and that significant action was still needed to address all four of the access challenges illustrated above. In 2007, it was estimated that as many as 80% of Internet subscriptions were in Nairobi, which has less than 10% of national population. It is not clear what the current figure might be, but Nairobi clearly still has a higher density of Internet users than other parts of the country.

When discussing the availability and affordability of infrastructure, informants particularly raised the following five issues:

- the need for full deployment of the national optic fibre backbone, and development of higher bandwidth links to regional and district towns;
- ensuring the capacity of mobile operators' networks to deliver data countrywide, including rural areas, and enhancing the deployment of wireless networks, including 3G networks and technologies such as WiMAX;
- ensuring that sufficient radio spectrum is made available to enable mobile operators to meet rapidly rising demand for data access;
- enabling a range of data tariff options that are affordable to lower income groups and at lower levels of usage; and
- effective implementation of the universal service fund.

Some ICT Board initiatives, such as the Digital Villages programme, are relevant in this context. Some informants said that they were unclear about the impact of these programmes, and suggested that their performance in terms of stimulating access and usage should be evaluated in order to ensure that investment resources are most effectively deployed.

Issues of network quality and reliability remain important and unresolved, even in Nairobi. Most users experience connectivity problems, which are exacerbated by deficiencies in power infrastructure. Accidental damage to the TEAMS cable in February 2012, and problems arising from damage to terrestrial infrastructure, have underlined the continued vulnerability of international bandwidth, and emphasised the importance of

redundancy and contingency planning. Some informants questioned whether current spectrum allocation policy and arrangements would be sufficient to cope with the increased demand for spectrum that would arise as demand continues to increase rapidly for mobile data services and access.

Cybercafés form an important part of the Internet access network in Kenya, even for those who have mobile access (because PC access remains preferable for viewing video, downloading large files and other purposes). The impact of mobile Internet on cybercafés is insufficiently researched. Despite its importance in providing Internet access for many people, the cybercafé sector was barely mentioned by informants for this research. Cybercafé businesses are also very poorly represented in Internet governance discussions (see section 3B).

If geographical challenges are not yet resolved, affordability also remains an issue in a country where a high proportion of the population lives at or below the poverty datum line. The introduction of flat rate charging for mobile data access in 2010 has had a positive impact on affordability and encouraged Internet use. Aggressive price competition between mobile operators has also sharply reduced prices since the acquisition of the operator Zain by Bharti Airtel in 2010. The transition from PCs to mobile phones as the primary access mode for Internet has reduced the equipment cost of obtaining personal access to the Internet. Nevertheless, the affordability of Internet access remains challenging for many people, both in rural areas and in low-income urban areas, and was raised by a number of informants. In the recent surveys by Google and Research ICT Africa cited in Chapter 2, two-thirds of non-users of the Internet from Kenya said that cost was a significant barrier to access.

Most of these issues of network availability and affordability fall primarily within the governance ambit of the communications regulator CCK (see Chapter 3C).

d. Public policy issues

The third group of Internet governance issues raised by informants concerns areas in which the Internet has impacted significantly on other public policy domains. Internet governance discourse and policymaking in these areas may involve significant technical as well as public policy challenges (as it does, for example, in cybersecurity). However, the ability to implement governance 'solutions' lies at least as much outside the Internet community as it does within, and requires the engagement of both Internet and wider public policy governance institutions.

The following paragraphs summarise the most significant issues of this kind that were raised by informants during the research. These are grouped in four broad categories, concerned with:

a) cybersecurity;
b) behavioural and rights impacts of the Internet;
c) local content and capacity-building;
d) the exploitation of the Internet for economic and social development.

Cybersecurity

Cybersecurity was identified by more informants for this study than any other theme, alongside access and affordability, as the most important issue of Internet governance in Kenya today. The term, however, is elastic, and can be used to cover many different issues. In Kenya, as in other countries, informants used it to refer to three main challenges:

i. the security of Internet resources and government websites;

ii. the security of personal data and vulnerability to fraud of Internet users;
iii. criminal and terrorist use of the Internet.

There was a perception among interviewees that cybersecurity risks in Kenya may have increased since the landing of submarine cables increased the bandwidth available in the country, as this had made it more attractive and cost-effective for international criminals to target the Kenyan market. There is no easy way of judging the validity of this perception.

Interviewees and respondents for the study expressed considerable anxiety about the weakness of current cybersecurity arrangements in Kenya, the majority of respondents to the project questionnaire, for example, describing this as poor or very poor. Respondents commented that, while cybersecurity threats are evident and known to senior decision-makers, insufficient action is being taken to address them. For example, they felt that there has been a lack of investment in up-to-date security by government departments and businesses.

Many people were concerned about recent hacking of government websites – including a number of attacks on police sources, and a single incident in January 2012 in which more than a hundred government sites were simultaneously attacked by a lone hacker from Indonesia. While the latter had not done actual harm, it was regarded as illustrating vulnerability resulting from poor management of government Internet resources. All the sites concerned had been hosted together, increasing their vulnerability. Internet professionals felt that government agencies were underestimating risk and under-resourced to deal with it, and that a more professional approach was needed to reduce vulnerability.

Government attention to cybersecurity has focused recently on the establishment by CCK of KE-CIRT, the Kenya Computer Incident Response Team Coordination Centre, part-funded by the ITU, which brings together government agencies, the Central Bank and Internet expertise (from KENIC, TESPOK and KENET) to address cyber-attacks as and when they occur. Views were mixed about the competence and effectiveness of KE-CIRT to date. In addition, the US Trade and Development Agency has agreed to finance the development, by an external consultancy, of a National Cybersecurity Plan 'to defend and secure Kenya's digital infrastructure' and recommend security standards to private firms.

The security threat to personal data poses challenges to all actors within the Internet world – users themselves, who are often incautious about protecting personal data; businesses – including ISPs and service providers such as Google and Facebook – which hold substantial data about their customers; and government departments which hold data on citizens, much of which is aggregated. All of these are vulnerable to a variety of threats, ranging from sophisticated hacking to phishing and '419' spam, which seek to defraud individuals or companies. New users – of whom there are many in Kenya – can be particularly vulnerable to fraud because of their inexperience in Internet use, though the low incomes of many new Internet users (and the relatively low use of conventional bank accounts in Kenya) make them less attractive targets.

Overall, vulnerability to fraud seems to be seen more as a potential than a current problem – something that could well become a serious difficulty for the local Internet but has not yet done so. While there is clearly anxiety about exposure to fraud in Kenya, there is also lack of awareness among users of specific risks which undermines their ability to protect themselves appropriately. Informants suggested that this is compounded by insufficient investment by companies and government agencies in security measures required to protect personal data.

Significant concern was expressed, and is evident in government, about use of the Internet by terrorist groups, particularly al-Shabaab and affiliates of al-Qaeda, both of which have been active in Kenya.

Another area which is of concern to many people – particularly politicians and the wider public – is what was often referred to as 'inappropriate content', particularly pornography. This was raised by a number of informants for the study, there is an undercurrent of discussion about it in the media, and it attracted attention from Kenyan participants at the global IGF in 2011. In Google's recent survey, 35% of Kenyan non-users cited 'inappropriate' content as a barrier to their use of the Internet. Some informants advocated content controls and other legal or regulatory interventions to protect children against exposure to 'adult' content. Discussions following a presentation on intermediary liability at the 2012 Kenya IGF also raised the nature of 'acceptable' or 'unacceptable' content on the Internet.

Mobile phones played a significant part in the organisation of political violence following the 2007 elections in Kenya. Social networking and mobile Internet are widely felt to have played a prominent part in the organisation of recent political unrest in other countries. Some informants expressed concern that the Internet might be used to foment trouble around the 2013 elections, or that fear of this might lead to controls or monitoring of Internet use. However, a number of those who expressed this concern felt that the political situation was less volatile than in 2007/8 and that this made abuse of this kind less likely. The 2013 election will be the first to take place since mobile Internet became a prominent part of mobile use in Kenya, and it is hard to predict what part it will play in the evolving political dynamic.

Behavioural and rights impacts of the Internet

The extent to which the Internet changes behaviour is the subject of much discussion around the world. In developing countries such as Kenya, it is difficult to distinguish between behavioural changes resulting from the newly widespread availability of mobile telephony and those resulting more specifically from the Internet, since the two are substantially coincidental. Many aspects of behavioural change – such as the ability to maintain contact with family members and to micro-coordinate activity – are regarded as beneficial or benign. Others, however, are more challenging to social norms. Studies of Internet users in Kenya have identified problems with perceived 'Internet addiction', access by children to content which is perceived as inappropriate, changes in social interactions within the family, *etc.*

Internet rights are widely discussed in international Internet fora. Although not raised as major priorities in this research, underlying concerns were evident in a number of rights areas, some of which relate to cybersecurity. Many of these concerns focused on privacy issues, including poor security on websites holding personal data and the possible monitoring of Internet behaviour for security purposes. Some informants also raised access for those with disabilities and broader issues of equality and inclusiveness, with much more emphasis being placed by informants on income and geographical differences than on age or gender. There were discussions at the 2012 Kenya IGF, stimulated by formal presentations, about open data and data protection, which are associated with rights of information and privacy.

Local content and capacity-building

Lack of local content has long been considered a problem in extending Internet use. People who do not make use of the Internet often say that they do not think it will be relevant to them. Language is also an inhibiting factor. There is still little content on the Internet in Kiswahili and very little in other Kenyan languages. In the Google survey cited in Chapter 2, 30% of Internet users said that more relevant content would be a driver for higher rates of use, while 46% of non-users cited lack of relevant content as a barrier to their engaging with the Internet.

As noted in Chapter 2, the number of local (Kenya-specific or .ke) sites among the most accessed websites in Kenya has grown significantly over the past year. Informants for this study frequently indicated the need for more local content to be made available. By local content they generally meant content which would have specific developmental value for the community within Kenya as a whole or at more local levels, such as information about health and education (types of data which Internet users say they access and value), agricultural market data, and information about local government and local events. Much information of this kind can also be made available by SMS, and so the configuration of information resources for different access modes is a factor here, particularly where available bandwidth is limited. The cost of connectivity is also relevant for poorer users: access to SMS may well be more cost-effective from their point of view.

Informants felt that government agencies should do more to make information of this kind available, and that its availability would encourage the spread of Internet access and use in social groups that are currently under-represented. The government's draft *ICT Master Plan* sets out specific objectives for local content and applications development, including encouragement of content in local languages and content which supports and fosters local heritage and cultures.

The government's Open Data Initiative[23] was cited by informants as an example of ways in which more local content could be published. This freedom-of-information initiative, which is supported by the World Bank and managed for the Ministry by the ICT Board, makes available national and local information from government databases in forms which enable citizens to explore how government is impacting on their districts (and which can be manipulated by external organisations to extract more value). By April 2012, more than 300 official datasets were available online, and requests for further sets had been invited from the public. However, it was reported by informants that all or almost all of the information then available was already published offline – in which case the Initiative was extending the accessibility of public information rather than extending the range of information available. The Initiative seemed to be regarded positively, and its development into a broader freedom of information tool seemed to be considered the next step, one which was emphasised at the 2012 Kenya IGF by the MOIC permanent secretary Bitange Ndemo.

Kenya – or at least Nairobi – has a dynamic small enterprise sector involved in software development, web design and applications development (see Chapter 3B), and there are a good number of examples of innovative development applications. Two SMS applications which have become internationally known – Ushahidi and Frontline SMS – are based in Nairobi, and could point towards ways of integrating mobile and Internet content development. The National Research and Education Network KENET is a potential driver of developmental content in the educational field, including collaborative work around open educational resources (OER). As in other countries, there is a high level of enthusiasm within the Internet and ICT technical and professional community for non-proprietary and open source software and applications.

As the paragraphs above indicate, interest in local content is focused largely on the provision of content and applications *for* users. In practice, the use of social networking platforms on mobile devices is driving a different model of content generation *by* users, largely through the sharing of personal information, entertainment and networking rather than the kind of content which developmental agencies have sought to promote. Not much attention is currently being paid to this *as content generation*, but it is beginning to erode some of the established boundaries between different modes of content. For example, businesses are beginning to market themselves through Facebook as well as or even rather than through websites. The impact of social networking and other Web 2.0 resources on the nature of local content is significant and needs further observation.

[23] https://opendata.go.ke/

Capacity-building was raised directly or indirectly by many informants as an ongoing challenge within the Kenyan Internet environment. It was seen to be significant in a number of areas, including:

- The Internet technical and professional community. Although Kenya has a more substantial and better educated technical and professional community than many developing countries, there is a perceived need for more people to have expertise in a wider range of competencies in order to take more advantage of the business and developmental opportunities available.

- Policymaking. Again, although Kenya has a larger and more wide-ranging policy community concerned with the Internet than many comparable countries, there is a perception among Internet specialists that the expertise of many policymakers is quite shallow and narrow, and that more should be done to build up the ability of decision-makers to understand the implications of technical issues (such as those in cybersecurity or the transition to IPv6). There was also a suggestion that it would be useful for decision-makers in Internet businesses to have a broader grasp of policy as well as business aspects of the Internet. Some informants felt that there was an Internet governance 'establishment' that was not sufficiently open to business interests.

- The wider public. The Internet is still a novel experience for many Kenyans, and a lot of people feel unsure about how to use it effectively or safely. In Google's and Research ICT Africa's recent surveys (see Section 2), lack of knowledge of the Internet and how to use it was the most frequently cited barrier to use by Kenyan non-users. Efforts to build a better understanding of how to use the Internet need to reach both adults and the next generation of children. They should also build on the real experience of Internet in the community, which is of usage on mobile phones as much as or rather than computers.

The Internet and socio-economic development

The value of the Internet in socio-economic development is seen by both the Government of Kenya and by informants for this study as a critical objective for both Internet governance and national policy. As one informant put it in a questionnaire response, 'The Internet facilitates communication, coordination and collaboration. This is what Kenya needs to improve as it moves from a developing to a developed country by 2030.' Government pursuit of Internet-enabled economic growth, and of Kenya's potential as a regional ICT hub, is evident in the promotion of BPO and ITES, the initiatives of the ICT Board and, symbolically and more, in its plans for a technology park/city at Konza. Although they may have had some concerns about the approach of government in some of these areas, informants had almost all bought into the objective of using the Internet as a catalyst for growth.

The following were the most important policy issues concerned with socio-economic development that were identified by informants:

- The development of an enabling environment for e-business and e-commerce, which would make Kenyan business more efficient and competitive.
- The delivery of government services to citizens (*i.e.* client-oriented e-government, rather than e-government focused on internal management systems).
- Use of the Internet to:
    - improve the delivery of health care; and
    - improve educational outcomes,

  as well as education to improve knowledge of the Internet.
- The appropriate application of ICTs to support productive economic sectors, large and small, including agriculture.

- Access to information and knowledge from global information resources.
- Facilitation of research in universities and research centres, as a contributing factor to long-term economic transformation.

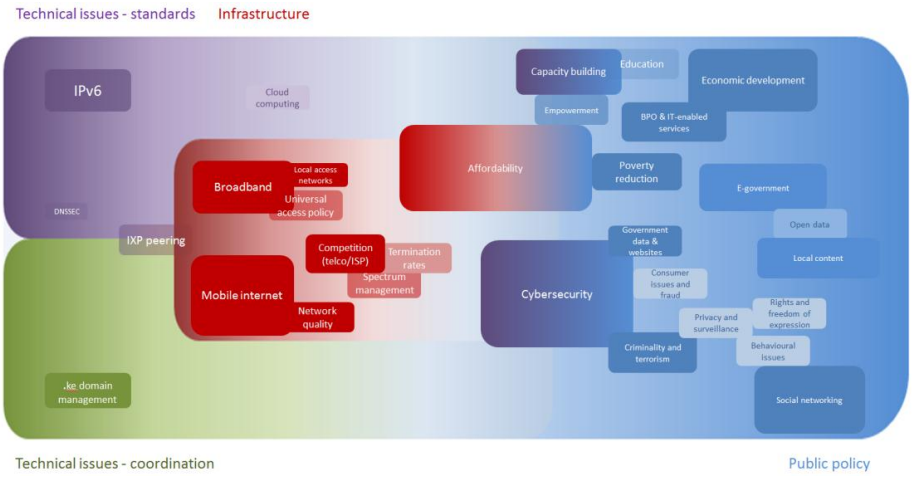
This is a wide range of issues, none of which is particularly surprising. Informants also emphasised a number of measures which they felt were important in enabling these objectives to be achieved, in particular the extension of reliable connectivity at higher speeds throughout the country. Several used the (common) phrase 'Nairobi is not Kenya, and Kenya is not Nairobi' to express this. Other necessary interventions mentioned by informants included measures to improve understanding of the developmental potential of the Internet, more relevant local content (see above), and the development of a 'culture of cybersecurity' within the population.

e. Mapping Internet governance issues in Kenya

The issues identified in this section of the report have been summarised in the table at Figure 12. It is also possible to present a graphic map of Internet governance issues which are perceived to be important in Kenya today. These have been drawn together in the map at Figure 14. This is the first of a number of maps of this kind, which follow a template set out in the ISOC framework for national assessments, to appear in this report. These maps are not intended to be comprehensive, but to provide a pictorial shorthand that elucidates the commentary in the text and helps to identify important aspects of an environment and how they relate to one another. They build on work to map the international Internet governance environment which one of the authors of this report, David Souter, undertook for the Association for Progressive Communications in 2010. APC's work has been published under a Creative Commons licence and may be developed and used by other organisations with acknowledgement and under comparable Creative Commons terms.[24] It is recommended in the ISOC framework.

The map in Figure 14 locates the main issues of Internet governance which have been identified above along the continuum between technical and public policy issues which was illustrated in Figure 11. It also indicates the relationships between different issues (through proximity), the range of impacts which different issues have (by size of marker) and their importance at the present moment (intensity of coloration). It will be used in subsequent sections of the report as a backdrop to illustrate the relationships between issues, stakeholder groups and decision-making processes.

Figure 14: Mapping Internet governance issues in Kenya



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The issues of most importance in Internet governance, in Kenya as in other contexts, change over time. The description in this chapter and the map at Figure 14 are concerned with the situation as it stands today. Looking back at documentation over the past five years or so, particularly from the Kenya IGF, it is clear that the most significant change in priorities for the Internet governance community has concerned access and infrastructure.

Before the landing of submarine cables in 2009, the most important issue facing the Internet in Kenya was the shortage of international bandwidth associated with dependence on satellite connectivity. This resulted in high prices and poor quality, and inhibited the use of Internet for national development as well as personal gain.

Since the landing of competing submarine cables and subsequent price reductions, attention in this area has shifted towards national infrastructure, including mobile access, and towards the price of access for mass market users. Spectrum management may also be a bigger challenge in the future, as demand for mobile data increases the demand for spectrum. The growth of mobile Internet is and is likely to continue to be rapid, leading to wide-ranging behavioural changes in society and perhaps new economic models – though relatively little attention is currently being paid to these.

The most important single issue in Kenyan Internet governance today that was identified by stakeholders, alongside access and affordability, is cybersecurity, attention to which has been increasing – as it has in many countries – over the last few years. Cybersecurity is not narrowly defined, but the most important concerns in Kenya are over the vulnerability of government websites, the risks of terrorism and fraud. Other priority public policy concerns include the availability of local content and the exploitation of the Internet within government strategies for ICT-enabled economic growth. Less attention is being paid to issues of privacy and freedom of expression than is paid to these in international Internet governance debates, though concerns about them were expressed in discussions of open data and child protection, and presentations on them were included in the 2012 Kenya IGF.

The potential value of the Internet for social and economic development is of importance to government agencies, other stakeholders that can be expected to benefit from Internet-enabled services, and, ultimately, the whole community. Government has high aspirations for use of the Internet, notably in developing export-oriented IT-enabled service sectors and for improving the delivery of public services. These aspirations are based on assumptions about the relationship between Internet, broadband and socio-economic outcomes which are widely held within the international ICT community, but which need to be assessed in relation to other development challenges, including the availability of complementary infrastructure, bureaucratic and organisational constraints, and the financial and human capital available to take advantage of new opportunities.

The most important technical challenge for Internet governance in Kenya is seen to be IPv6, though there is less urgency attached to this than many in the global Internet community, and some within the local Internet community, would wish. The technical foundations for deployment of IPv6 appear to be in place, but there is low awareness of its relevance and potential among users, including otherwise Internet-savvy users, and little is currently being done by Internet businesses to push forward this agenda. There are also some concerns over implementation of DNSSEC and ccTLD management, though, where the latter is concerned, it should be noted that KENIC has been more successful in securing registrations than almost all its peers in sub-Saharan Africa. Surprisingly little attention seems to be paid at present to the potential for cloud computing, which has significant implications for the fulfilment of government objectives in BPO and IT-enabled services, though this was one of the themes for discussion during the 2011 Kenya IGF. The 'Internet of things', likewise, was barely mentioned by informants during the research.

CHAPTER 3B: STAKEHOLDERS IN INTERNET GOVERNANCE IN KENYA

a. Overview

This chapter of the report looks at the different stakeholder groups that a) make use of the Internet, and b) participate in Internet governance in Kenya.

This distinction is an important one. The Internet is increasingly important in most aspects of life, in developing countries such as Kenya as well as in industrial countries. It increasingly impacts on social behaviour, economic organisation and the delivery of government services. It is used by a substantial and growing proportion of the population, and particularly by the rising generation. It is changing social norms, opening new opportunities for businesses (large and small, legitimate and criminal), enabling access to much richer sources of information and much more extensive interaction between individuals and organisations. Almost everyone, in other words, is affected by the Internet; everyone is, to some extent, a stakeholder. But not everyone participates in Internet governance.

Multistakeholder participation has been a principle behind much Internet governance since the Internet's early days. Global governance entities such as ICANN and the IETF have been primarily non-governmental and multistakeholder in character, contrasting with the intergovernmental character of the ITU and global governance institutions in other sectors. Their multistakeholder ethos and structure has been replicated in other governance entities such as the Internet's Regional Internet Registries (RIRs) and in the Internet Governance Forum. It has resonated, too, at national level, as the following description of Kenya will show. The increasing importance of the Internet is, however, a source of growing tension between the multistakeholder norms of the Internet and the more conventional governmental and intergovernmental norms of other public policy domains, and this is becoming increasingly important in international discussion of the future of the Internet.

There are, therefore, two central questions in exploring stakeholder participation in the national Internet governance environment:

- who is affected by the Internet (*i.e.* who, these days, are stakeholders)?; and
- which stakeholders participate (and which do not) in Internet governance?

The following paragraphs seek to answer these questions for Kenya. They are structured around a taxonomy of stakeholder groups within the Internet which emerged from WSIS, has continued in the global IGF, and is described more fully in the ISOC framework for national assessments. It identifies five main stakeholder groups within an Internet governance environment. These are:

- government and official agencies;
- the private sector;
- the Internet technical and professional community;
- civil society; and
- users, consumers and the wider community of citizens, present and future.

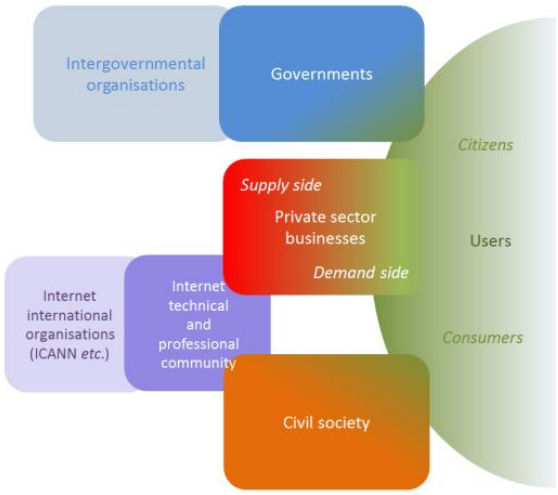
Within these categories, there are important distinctions. The private sector, for example, includes both businesses which supply the Internet (such as telecommunications companies, ISPs and cybercafés) and those which make use of it, characterised in the diagram at Figure 15, below, as the supply and demand sides of the private sector so far as the Internet is concerned. Government agencies and civil society organisations likewise include both those which are primarily or substantially concerned with promoting and enabling ICTs (such as the telecommunications regulator or, in Kenya, KICTANet) and those whose involvement is primarily as users.

Individuals interact with the Internet both as citizens and as consumers. Individuals and organisations do not, in any event, always fit neatly into one or other of these categories, as illustrated by the overlaps in Figure 15.

In all categories, some individuals and organisations are intensively engaged with Internet governance, some play a partial role, while others have little or no engagement and show little or no interest. The last of these include individuals and organisations whose lives, work and livelihoods are substantially affected by the Internet and Internet governance decisions. Their interests should not be ignored in an assessment of the national Internet governance environment. Instead, that assessment should try to identify what results follow from their lack of engagement, why it arises and how they might be more effectively involved.

The main stakeholder groups in Internet governance, and their relationship with international stakeholders are illustrated in Figure 15, which is taken from the ISOC framework for national assessments.

Figure 15: Internet stakeholder communities



Engagement with Internet governance in Kenya has involved stakeholders from all these groups. The national IGF has a genuinely multistakeholder character and there is significant debate among participants from different stakeholder communities in other fora (such as KICTANet) and online lists. Kenyans from government, business and civil society all take part in international Internet governance meetings. A number of Kenyans have played and continue to play significant roles in the technical and professional community in Africa as a whole, in Internet decision-making entities such as AfriNIC,[25] and in technical professional community associations such as AfrISPA and AfNOG.[26] However, the number of those who are substantially engaged in national Internet governance is still relatively small, and those who are involved are overwhelmingly based in the capital Nairobi. Before describing stakeholder groups in detail, two further general points should be borne in mind.

The first of these concerns the depth of awareness and understanding of Internet issues and Internet governance. Lack of awareness of Internet governance issues within the general public is often remarked upon, in many countries. There is an important distinction to be drawn between people's awareness and understanding of Internet governance, on the one hand, and the significance of Internet governance and related public policy outcomes on their lives. It is not only those that identify themselves as stakeholders that have a stake in the decisions that are being taken. As in many countries, so in Kenya, it has proved challenging to engage the interest of ordinary Internet users in how the Internet is governed. In addition, it is clear from interviews and discussions for this assessment that many of those whose lives are inextricably linked with the

[25] The African Network Information Centre, the continent's Regional Internet Registry.
[26] The African ISP Association and the African Network Operators' Group.

Internet – such as small-scale entrepreneurs interviewed at the iHub technical innovation centre in Nairobi – are unfamiliar with Internet governance in general, with current initiatives about (for example) IPv6 or cybersecurity, and even with terms that are widely used in Internet discussions (such as 'net neutrality').

The second point concerns the role of personalities. The multistakeholder environment is usually discussed in terms of stakeholder categories – government, private sector, civil society, the technical and professional community – and institutional actors within these categories. These are, of course, important in Kenya, and are described below. However, many interviewees identified a small group of individual personalities as the most important players in Kenyan Internet governance. These included, for example, the permanent secretary in the Ministry of Information and Communications (Bitange Ndemo), Alice Munyua (the coordinator of the multistakeholder grouping KICTANet), James Rege (chair of the parliamentary committee concerned with ICTs), Michuki Mwangi (ISOC's regional development manager for Africa) and Brian Longwe (who has many years' experience in ISPs and other Internet businesses).[27] In these cases, it was their personal rather than institutional engagement, over a long period of time and in different capacities, that interviewees thought was important. They were seen as critical opinion leaders who had considerable influence over decision-making outcomes because of their individual expertise and stature, independent of their institutional affiliations.

While the role of these individual personalities was generally felt to be strongly positive by informants, some respondents to the project questionnaire felt that the multistakeholder character of Kenya's Internet governance environment was not as inclusive as it might be. Business informants were less likely to see the Internet governance community as being open than others, and were also less likely to participate in (or even be aware of) government initiatives like the IPv6 Task Force, influential advocacy groups like KICTANet or the national IGF. Some felt that these fora were more concerned with policy than business issues and were not particularly attractive or open to business interests. One business chief executive said that he felt the Internet governance community was 'cliquish' and uninterested in business achievements. While Kenya has been more successful than most countries in securing multistakeholder participation in Internet governance, as with the global IGF there are still perceived gaps in participation which need to be addressed.

b. Government stakeholders

The Internet has significance in government for several reasons:

i. It has wide-ranging political importance within national social and economic development.
ii. It has specific sectoral significance, concerned with the management of the ICT sector itself.
iii. It has implications for national security.
iv. It has wide-ranging significance for the delivery of government services, particularly through e-government, in the education sector and in areas such as trade facilitation.

Different entities within government have responsibilities in these different areas, and together make up a wide range of interested stakeholders. Some, but not all, of these are actively engaged in Internet governance. There are also significant regional and global tiers of governance in which the Government participates.

i. General government and political entities

As described in Chapter 2, the Government of Kenya has given prominence to the ICT sector, including the Internet, in its approach to the country's strategic economic development. It has invested significantly in both international and national infrastructure (specifically in the TEAMS submarine cable and in the National Optical Fibre Backbone Infrastructure, NOFBI); it has identified business process outsourcing and, more recently, IT-

[27] This list is not comprehensive. Those mentioned have been asked for their views during the research for this report.

enabled services as critical components in making Kenya an international IT hub and in generating future national economic growth; and it has set about the development of a new technology city at Konza.

These objectives, which were discussed in Chapter 2 and Chapter 3A, are all highly dependent on the Internet. Their prominence in national development policy gives the Internet significance to the most senior and most wide-ranging governmental institutions within the country – the Presidency and the Prime Minister's office, the Ministry of Finance and the Ministry of State for Planning, which is responsible for implementation of the national *Vision 2030*.

Developmental targets acquire political as well as governmental significance – particularly, in democracies, at election times when the availability and quality of the Internet may become important at constituency as well as national level. Political parties and politicians may compete with one another to offer better access to the Internet. A number of individual politicians have become strongly identified with ICT and Internet development and have significant influence in public policy debate on these issues. Within Parliament, the Parliamentary Committee on Energy, Transport, Information, Communication, and Public Works – chaired by the Hon. James Rege – provides a forum for political input on the ICT sector and the contribution which it makes to national development.

The developmental impact of the Internet is not confined to individual countries. Kenya is a prominent member of two of Africa's Regional Economic Communities (RECs) – the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA). These provide a framework for evolving economic integration which is highly dependent on regional infrastructure and on regional cooperation in areas such as trade facilitation (which increasingly relies on digital information-sharing). Landlocked countries such as Uganda, Rwanda and South Sudan are also significantly dependent for connectivity on infrastructure in Kenya. RECs and the governments of neighbouring countries therefore also have an interest in Kenya's communications infrastructure and Internet environment.

International Financial Institutions (IFIs, such as the African Development Bank and World Bank), as well as multilateral and bilateral donors (such as IDRC and USAID), likewise have an interest in the outcomes of national development strategies. IFIs have invested in communications networks (including the EASSy cable) and in establishing and financing government agencies (such as the ICT Board), while bilateral donors support programmes that seek to leverage the Internet for developmental outcomes in areas such as access, content development, entrepreneurship and the delivery of public services. Some (such as DFID and IDRC) have played a part in national Internet governance debates or provided financial and logistical support to enable those debates to take place and support civil society participation. Multilateral agencies (such as the ITU) and independent organisations (such as the Diplo Foundation) have supported the participation of Kenyans in international Internet governance fora including the global IGF.

ii. Sectoral entities

The most important government stakeholders in the Internet in Kenya are those that are concerned directly with the communications sector. Four agencies are of particular importance both as stakeholders and (see Chapter 3C) as decision-making entities. These agencies, together with the Kenya IT and Outsourcing Society, have been responsible for developing the *National ICT Masterplan*, which is currently in draft and was discussed in Chapter 2.

The Ministry of Information and Communications (MOIC), led by the Hon. Minister Samuel Poghisio and the permanent secretary Bitange Ndemo, is responsible for the formulation and implementation of ICT policy and, interviewees were unanimous, has played a powerful role in driving the ICT agenda within overall government policy over the past five years. It was constituted in June 2004 with the aim of creating a one-stop shop for all ICT-related government activities.

The Ministry's mandate includes policy on ICTs, broadcasting and the film industry, the development of national communications capacity and the dissemination of public information. As well as dealing with policy issues, it has oversight of a number of other state bodies, including the Kenya Broadcasting Corporation (KBC), the Postal Corporation of Kenya (PCK), the Communications Commission of Kenya (CCK), the Communications Appeal Tribunal, and the ICT Board. It is responsible for government investments in communications infrastructure including the TEAMS cable and the national optic fibre backbone (NOFBI). The National Communications Secretariat, housed within the Ministry, also has responsibility to develop policy papers and provide guidance to other parts of government on ICT-related issues.

The second powerful government agency in the communications sector is the Communications Commission of Kenya (CCK), the regulatory authority for communications. CCK's responsibilities were extended in 2009 to cover the converged communications sector including electronic commerce and broadcasting. Its mandate requires it to protect consumer rights and to manage competition to ensure a level playing field for operators. Its responsibilities include licensing communications operators (including Internet Service Providers), managing radio spectrum, regulating retail and wholesale (interconnection) prices, managing a universal access fund and hosting the KE-CIRT coordination centre which responds to cybersecurity threats. It is represented on the board of KENIC and plays a significant part in other Internet organisations, nationally and internationally. Its decisions therefore have critical importance for the development of infrastructure and access, competition and consumer rights, and for enabling the development of Internet services in the country. The board of CCK – chaired until recently by a longstanding former public official and later parliamentarian, Philip Okundi, and now by a former print and broadcasting executive, Ngene Gituku – includes representatives of MOIC and the Ministry of Finance as well as independent members (who include one of the authors of this report).

The third key government agency in the sector is the Kenya ICT Board, which was established as a state corporation in 2007 and whose work has been funded by the World Bank. The ICT Board's role is to stimulate the contribution of ICTs and the Internet in national economic development, particularly where BPO and ITES are concerned, and to foster the reach of ICTs and the Internet into rural areas. This last includes a 'digital villages' approach which seeks to enable connectivity for local purposes and to incorporate the whole country in export-oriented ICT services. The ICT Board also manages the government's Open Data Initiative (see above).

The fourth government agency of importance is the Directorate of eGovernment, which was established in 2004 to formulate the government's strategy for e-government and to oversee the design and coordination of activities by government departments concerned with the delivery of public services. This includes work to ensure the interoperability of different government systems. The delivery of public services now extends beyond the provision of information to include a number of online transaction services including the submission of tax returns and customs documents, applications for public service jobs, publication of examination results and business licensing.

Other specialist government agencies which play a role in aspects of Internet governance include the Kenya Bureau of Standards (KBS), which is responsible for ensuring the quality and compatibility of ICT hardware and networks, and the Government Information Technology Services (GITS) division of the Ministry of Finance, which is responsible for managing government IT services and equipment.

iii. Security agencies

As noted above, cybersecurity is a major priority for the Government of Kenya and considered of high importance by other stakeholders. The range of issues covered by cybersecurity is extensive, including risks to national defence and security posed by terrorist and other hostile organisations, the protection of government

and other websites against malicious hacking, the protection of citizens against fraud, and measures to address issues such as child pornography and copyright piracy.

Where national defence and criminal activity are concerned, these issues are a responsibility of national security agencies and the police, who need to work together with Internet specialist agencies inside government and with Internet supply-side businesses.

At an operational level, the principal ICT-sector government initiative in this area is KE-CIRT, the Kenya Computer Incident Response Team whose coordination centre is located in CCK. This is currently co-financed by CCK and the ITU, with ITU support for capacity-building, and is discussed elsewhere in this report.

iv. Mainstream government agencies

The fourth main group of government entities with a stake in the Internet are those that make use of it to deliver public services – or which could do so in future. In practice, this includes most government ministries and agencies, though some have taken more interest in the Internet than others. Although these government entities are substantially affected by and often major users of the Internet, they are often under-represented in discussions of Internet governance. The Government's overall approach to use of the Internet and other ICTs for government purposes is overseen by the Directorate of eGovernment (see above).

This is not the place to explore initiatives undertaken by mainstream government ministries and agencies in detail, and just a few of the themes and departmental responsibilities will therefore be mentioned as examplars. A great deal of attention is paid in many countries to the role of ICTs and the Internet in education, and Kenya is no exception to this. There is considerable interest, again in many countries, in use of the Internet to support health awareness and promotion and in the management of public health. Information resources enabled through mobile phones have been shown to have significant value for farmers, fishing communities and small entrepreneurs, particularly in managing supply chain relationships, locating the best prices for inputs and the best places to take produce to market. These resources are likely to migrate from SMS to mobile Internet as the latter becomes more widely available. Government departments are not the only organisations involved in these areas of work (donors and NGOs are also significant stakeholders, as may be commercial information providers) but they have a strong interest in the improved outcomes that can be enabled by the Internet. Kenya's new constitution transfers much administrative authority from central government to 47 new local administrations (counties), whose government bodies will likewise have an interest in the availability, access and use of Internet within their jurisdictions and will seek to exploit them for local development.

The role of the Kenya Revenue Authority (KRA) is also noteworthy. It is responsible for the collection of taxes, customs and duties. It maintains what was in April 2012 the most used government website in Kenya, and offers online services including the opportunity to submit tax returns and payments, as well as providing information to citizens and businesses. In addition to providing services to corporate and domestic taxpayers, the Internet is of considerable importance to deployment of a national single window for trade facilitation, which will integrate customs, port and transit processes, reducing costs for government and trading enterprises.

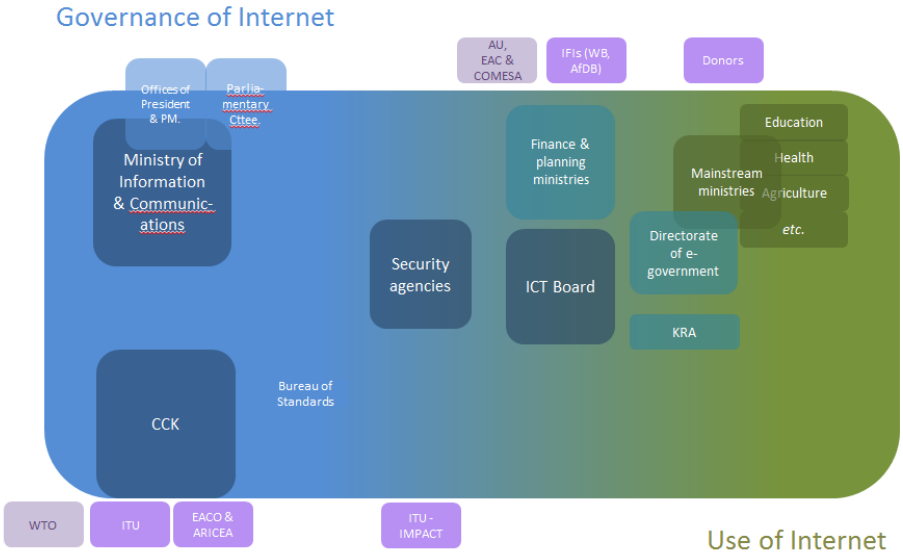
Mapping government agencies

Some of the governmental agencies described above play a significant part in international Internet governance activity, while a number of international agencies have significant influence on the Internet governance environment in Kenya. The Ministry and CCK, for example, are substantially involved in the work of the global IGF, and play a part in the Governmental Advisory Committee (GAC) of ICANN. They were substantially responsible for bringing meetings of both global entities to Kenya. They are also the main points

of interaction for Kenya with the ITU and with ITU-led activities such as the international cybersecurity agency IMPACT. Government agencies such as the KRA work with their peers within the Regional Economic Communities the EAC and COMESA, while CCK participates in those RECs' regulatory associations (EACO and ARICEA), which work to harmonise communications regulatory practices within their regions. The recent establishment of a Tripartite Agreement between EAC, COMESA and the Southern African Development Community (SADC) should extend regional cooperation. International financial institutions (IFIs), such as the World Bank and the African Development Bank, are significant investors in communications infrastructure, and also offer policy guidance, while multilateral and bilateral donors make use of the Internet in pursuit of development objectives. Government agencies are, lastly, involved in a number of Africa-wide organisations including the African Union, which has regularly discussed continental ICT policy objectives and set continental priorities.

Figure 16, below, uses a component of the diagram of stakeholders in Internet governance in Figure 15 to illustrate the most significant government agencies involved in Internet governance and their links with international organisations. The size of markers in this diagram indicates the range of Internet governance issues with which different agencies are concerned, while the depth of colour indicates the extent of their authority in their own areas of responsibility.

Figure 16: Government agencies involved in Internet governance in Kenya



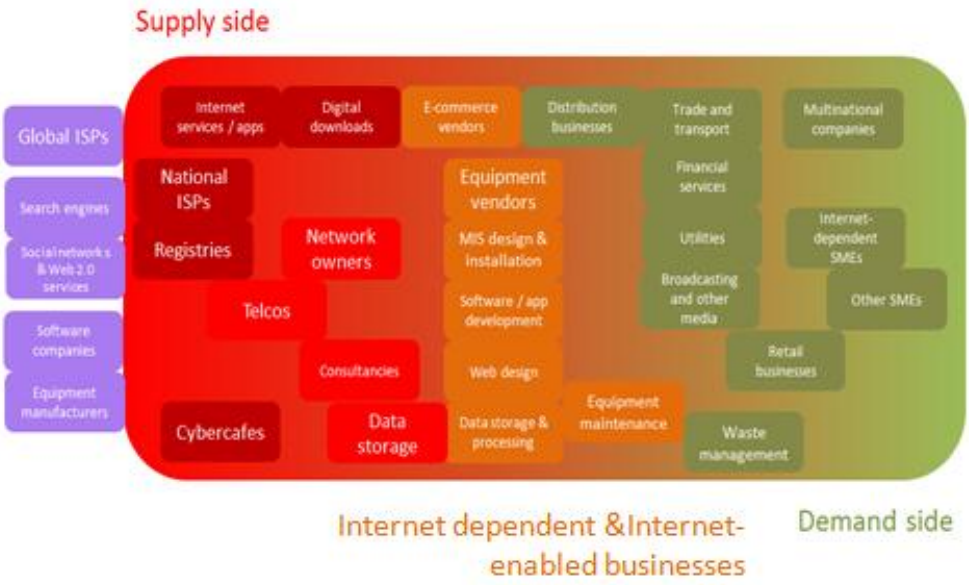
c. *Private sector stakeholders*

The Internet is increasingly a private sector led communications medium. Private sector businesses, including infrastructure providers and Internet-specific companies such as Google and Facebook, are among the world's most powerful businesses, not just within the Internet or ICT sector but more generally. Private sector innovation plays a crucial part in driving forward the ways in which the Internet delivers services to end-users, both globally and in different national environments.

Discussion of private sector stakeholders in Internet governance fora is often rather narrowly defined, however, focusing on the supply side of the Internet – those businesses that make the Internet available – but paying much less attention to the demand side – those businesses that make use of it. In practice, as with government agencies, private sector stakeholders can be represented on a continuum, ranging from suppliers of the Internet, through Internet-enabled and Internet-dependent businesses, to the generality of firms for

which the Internet is a valuable resource in everyday business activities such as marketing and managing supply chains. This continuum is illustrated in Figure 17, which is taken from the ISOC assessment framework.

Figure 17: Private sector stakeholders in Internet governance: an illustrative overview



In the Kenyan context, the continuum illustrated in this diagram includes both multinational and Kenyan businesses, large and small companies, firms which work entirely within the Internet and those for which the Internet is of marginal importance. Some, such as telecommunications operating companies, are powerful players in Internet governance by virtue of their position within the Internet market (even though they may not be particularly active in Internet governance decision-making fora). Others, such as web designers and cybercafé managers, have little influence or involvement even though they are intensely affected by Internet governance decisions. The following paragraphs look in turn at:

- businesses on the supply side of the Internet, which provide the Internet to other stakeholders;
- Internet-enabled and Internet-dependent businesses;
- businesses on the demand side of the Internet, whose involvement is primarily or wholly as users of the Internet; and
- Internet-related business associations.

The supply side of the Internet

The first main group of business stakeholders consists of those businesses which supply the Internet to Kenyan users. As well as acting as independent stakeholders, they are also represented collectively through the Telecommunications Service Providers Association of Kenya, TESPOK (see below).

The most significant and powerful businesses in this category are communications infrastructure and service providers, particularly the telecommunications operating companies. Without their networks and the services they retail to consumers, there would be no Internet. The most important stakeholders of this kind are, therefore, the four main telcos, which are all integrated (partly or wholly) into global multinational enterprises, and which were briefly described in Chapter 2:

- Safaricom, which holds 64% of the market for mobile telephone subscriptions (but 79% of voice traffic) and 69% of the mobile data market, and which is owned by the Government of Kenya, Vodafone and other shareholders.
- Telkom Kenya, which is the sole fixed network operator, and also provides mobile services through Orange Kenya, which holds 10% of the market for mobile telephone subscriptions and 9% of that for mobile Internet;
- Airtel Kenya, which now holds 17% of the market for mobile telephony and 14% of the mobile Internet market, and which is owned by the Indian multinational enterprise, Bharti Airtel.
- Essar Kenya, which has 9% of the market for mobile telephony and 8% of the mobile Internet market, and which is owned by the Indian company Essar Communications.

These national telcos now rely on three licensed submarine cable businesses for international connectivity. These are:

- EASSy, which is owned by a consortium of telecommunications operators;
- SEACOM, owned by African and US investors; and
- TEAMS, owned by a Kenyan consortium, including the Government of Kenya, and the Emirati firm Etisalat.

A fourth cable, LION2, built by a consortium including France Telecom and Telkom Kenya, began to connect Mombasa with the island states of Southern Africa in April 2012.

Between them the national telcos now dominate Internet service provision in Kenya, having largely displaced independent ISPs since the introduction of technology neutral licensing in 2008. However there are also a number of other communications facilities providers and ISPs in the country, some of which are focused on wholesale facilities and on the corporate market. These businesses include Kenya Data Networks (KDN, data network operator with leased line and IP data services), Jamii Telecommunications (fibre network, corporate data and other high-speed services), Wananchi Group (corporate data, triple play and home entertainment), Africa Online (regional ISP), Blue (wireless broadband) and Ericonet (hotspots),

Internet users require more than Internet Service Providers to deliver meaningful access to the Internet. In practice, the Internet is made accessible to them by a number of other businesses which have a strong interest in the quality, reliability and spread of Internet. These include multinational businesses as well as businesses that are based in Kenya and dependent on the Kenyan market.

Kenyans mostly access the Internet through mobile phones and cybercafés. A wide range of businesses provide support for mobile phone consumers, from the purchase of handsets and airtime to the development and marketing of smartphone apps. Although their revenue is intricately linked with growth of the Internet, these businesses rarely engage in discussions of Internet governance.

Cybercafés are a particularly significant group of businesses that supply the Internet in Kenya. These businesses offer customers different models of Internet use from those available on mobile phones – for example, they are more suitable for watching video and for large downloads – and so remain significant modes of access for mobile Internet users as well as those who do not use mobile Internet. However, their business model is increasingly under threat. In spite of their importance in supplying the Internet, particularly to lower-income users, they are not actively engaged in Internet governance discussions, and the future of the cybercafé market was not raised by Internet governance stakeholders in discussions for this report.

After telecommunications network businesses and ISPs, the most important international businesses to shape the Internet experience for Kenyan users are the providers of major content platforms. As indicated in

Chapter 2, the leading websites accessed in Kenya are international platforms such as web browsers (*e.g.* Google, which is now widely accessed as Google Kenya as well as through its global platform), social networks (particularly Facebook, but also Twitter and LinkedIn), and shared content resources (such as YouTube and Wikipedia). The business models of most of these platforms are advertising-based and have an impact on local advertising markets. Although not themselves active in Internet governance in Kenya (they are active globally), or significantly dependent on Kenyan business, the decisions which they make about the development and marketing of their services significantly impact on the ways in which the Internet is experienced in Kenya. (Decisions made by global equipment manufacturers, such as smartphone companies, about the design, language and other capabilities and functionality of terminal devices, can likewise have significant impacts.

Local content is increasingly important (see Chapter 3A). The most important local content providers on the Internet in Kenya are the country's leading newspaper groups, the *Nation* and the *Standard* whose websites both feature in the top fifteen sites accessed in Kenya, as do a growing number of other local sites. Other significant local content providers include sites concerned with the communications sector, entertainment, shopping and business services. These illustrate the reach of the Internet into other business sectors, particularly the media and advertising. Internet content production is also significant further down the value chain, as illustrated in the following paragraphs.

Internet-dependent and Internet-enabled businesses

The boundary between businesses that supply the Internet (or Internet content) and businesses that are dependent on the Internet is blurred. The latter can be divided into three main categories.

Firstly, there are businesses which provide services that could not be provided in any other way than through the Internet, and/or which are built around innovation on it. To some extent, cybercafés fall into this category, but so do businesses which sell Internet-specific services to other companies, government agencies and the general public. These include, for example, Internet registrars (which sell .ke domain names under the oversight of KENIC, and which are usually part of other business ventures), web and application designers (including, now, designers of mobile apps), software programmers engaged in innovative uses of the Internet, and companies providing data centres. Kenya (or at least Nairobi) has developed a substantial community of such businesses, many of them small-scale enterprises, some clustered around specialist facilities such as the iHub. Some incubation activities have been established in Kenya to foster their development.

The second group of Internet-dependent businesses are those engaged in e-commerce of different kinds. This sector has not yet developed as extensively in Kenya as in high-income markets such as those in Europe or North America, but it is growing, and e-commerce websites are beginning to feature in the list of websites frequently accessed in Kenya. There is anecdotal evidence that Facebook is being used, alongside or even in preference to conventional websites, as a marketing channel by businesses in Kenya. The prevalence of MPESA and development of other mobile transaction services may offer scope for some new business models to emerge around the interface between advertising/marketing and online transactions in the future.

The third group of Internet-dependent businesses consists of those which are located in a different economic sector, but whose ways of working have been changed so substantially by the Internet that they are now largely or wholly dependent on it. It could be argued that media and advertising (see above) fall into this category. Music retail now does so in industrial countries, and other forms of retailing may follow suit. Financial services businesses and trading enterprises have become highly dependent on the Internet to exchange information and manage transactions.

The most significant group of Internet-dependent businesses of this kind in Kenya, particularly where national development strategy is concerned, are the BPO and ITES businesses which have become established in recent years. These are discussed elsewhere in this report. As the BPO/ITES sector takes off, it will become an increasingly important stakeholder in the Internet in Kenya, though it does not yet seem to play a significant part in discussions about Internet governance.

The wider business community

The final group of business stakeholders in the Internet consists of the rest of the business community – the majority of firms that are not involved with the supply of the Internet or with providing services that are highly dependent on it, but which make use of the Internet to run business more efficiently, for example in supply chain management, to enable corporate intranets, and/or to market products and services to their consumers. As in other countries, these businesses do not usually engage in Internet governance debates. Their interests are, nevertheless, affected by the way in which the Internet evolves, and should not therefore be ignored. Internet governance actors and business associations should seek out their views on how the Internet can best serve their needs as Internet consumers.

Business associations

Although competitive with one another, businesses share common interests in their relationships with other stakeholders, particularly government, and in contexts like Internet governance. They are also therefore represented through a variety of business associations. In the global Internet governance world, for example, the BASIS group within the International Chamber of Commerce (ICC) has been consistently influential. One Kenyan Internet entrepreneur, Waudo Siganga, from the Computer Society of Kenya, has played a part in BASIS' international work.

The most significant business association within the communications sector is TESPOK, the Telecommunications Service Providers Association of Kenya. TESPOK was established in 1999 as an association to represent the interests of telecoms operators and ISPs, and describes itself as 'an industry voice in telecommunications, providing policy and direction within the industry and government.' It reports 38 members including telecoms operators of all kinds, ISPs, BPO operators, premium rate service providers and IT consultants. As well as lobbying and speaking on behalf of the industry, TESPOK supports its members through capacity-building and the development of strategic partnerships. It was responsible for establishing the Kenya IXP and KENIC, and is still responsible for managing the IXP.

Other business associations concerned with or within the communications sector include the Kenya National Chamber of Commerce and Industry; the Kenya Private Sector Alliance (KEPSA), which brings together more than 60 business membership organisations (including TESPOK) as well as individual companies, and seeks to provide a collective voice for the private sector in the country; and the Kenya IT & Outsourcing Society, which represents the BPO/ITES sector and participated in development of the new *National ICT MasterPlan*.

Mapping the Internet business stakeholder community

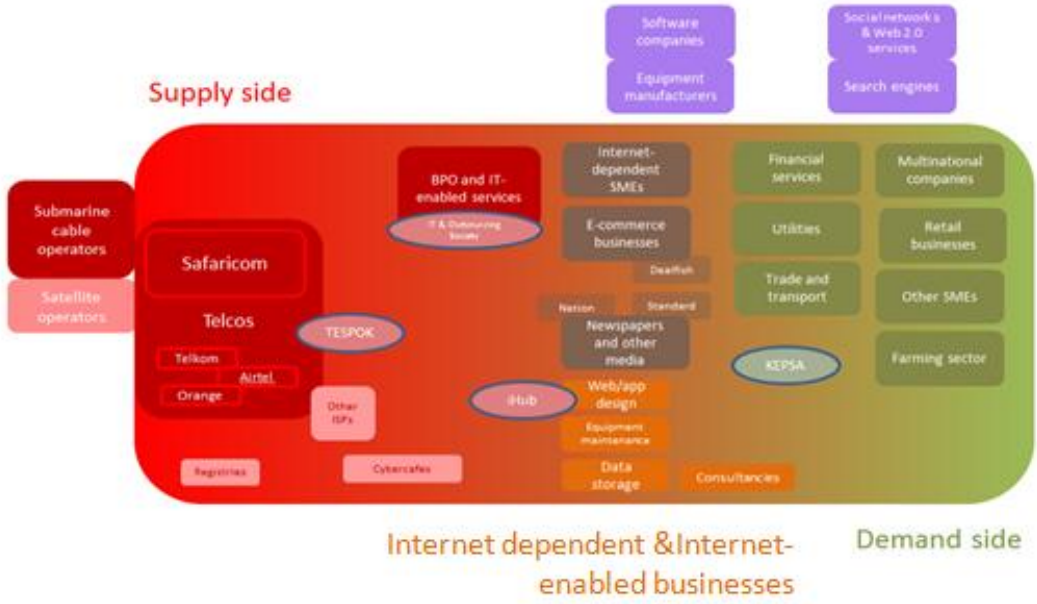
There are, to summarise, many different types of business stakeholder in the Internet and Internet governance in Kenya. These include businesses which supply the Internet, such as telecommunications operators, ISPs and cybercafés; companies whose business models exploit the Internet or which are highly dependent on it, such as e-commerce retailers, IT-enabled service providers and web designers; and those which merely make use of the Internet to run their organisations and supply chain relationships. They include global multinational companies such as Vodafone, Google and (amongst users of the Internet) banks and BPO enterprises, as well

as small start-up companies within and outside the Internet itself. Many are increasing their use of the Internet rapidly, as are their suppliers, competitors and customers.

This is a complicated and varied stakeholder group. More attention has been paid within Internet governance to companies that supply the Internet than those that merely use it. The former are much more likely to engage with Internet governance issues and decision-making processes, though it is also clear that many small enterprises that are highly dependent on the Internet have so far taken little interest in its governance.

It is important in a national assessment such as this to consider the engagement of all types of business in the Internet governance environment. Figure 18 takes the relevant component of the diagram of stakeholder communities in Figure 14 as the basis for mapping this complex private sector community.

Figure 18: Private sector stakeholders in Internet governance in Kenya



d. The Internet technical and professional community

There are significant overlaps between the Internet professional community and some of the supply side and Internet-enabled businesses described above. This community is made up of those who are professionally concerned with the technical working of the Internet and its relationship with other aspects of the ICT sector. It includes software engineers and computer scientists, IT specialists in telecommunications businesses and ISPs, and those who manage important Internet resources such as Internet Exchange Points and the domain name system. Many of these are employed by ICT businesses or in companies that make extensive use of ICTs. Others are independent entrepreneurs, freelance computer scientists, academics or consultants. They share a high level of knowledge of the Internet and are more likely to be engaged in technical areas of its governance – either as individuals or through their professional employment. They are also important participants in areas such as cybersecurity where the interface between technical and public policy dimensions of governance is crucial.

It is more difficult to categorise this stakeholder community at an institutional level than it is to categorise governments or the private sector. The following paragraphs deal first with specific entities which play a part in technical governance of the Internet in Kenya, and then with associations of people within the technical and professional community.

Technical Internet entities in Kenya

The most prominent Internet-specific technical entity in Kenya is the .ke domain name registry, KENIC, which was discussed above. This is located geographically alongside, but not subordinate to, the national communications regulator CCK. Its board includes representatives of most of the leading Internet governance institutions in the country – including CCK, Telkom, GITS, the e-Government Directorate and TESPOK – as well as industry personnel. Interviewees for this report generally felt that it was performing satisfactorily. Indeed, the performance of domain name management was rated more highly than any other aspect of Internet governance by those who responded to the project questionnaire. Some reservations were, however, also expressed concerning its performance, as reported earlier.

The second Internet-specific entity to be considered is the national Internet Exchange Point (IXP). This is responsible for exchanging Internet traffic, which is being routed from and to destinations in Kenya, within the country rather than over international telecommunications networks. Exchanging traffic like this in-country reduces international transit costs and improves efficiency.

The Kenya IXP was first established by TESPOK in 2000 but, as noted in Chapter 2, was initially closed down as a violation of the then international gateway monopoly. TESPOK was eventually granted a licence for KIXP in 2001, CCK clarifying at that time that it should be regarded as a peering network rather than an international gateway. There were 25 organisations peering through KIXP in April 2012 – 16 ISPs, plus the government network, KENET, KENIC and a number of other telecommunications licensees. As well as the Nairobi facility, TESPOK launched a second IXP in Mombasa, the landing point for international submarine cables, in 2010.

Most of those who are involved with the technical and policy management of these entities have technical expertise. Some also engage in continental and global technical governance entities. The most important continental entity is the African regional Internet registry AfriNIC. Its role and mandate are primarily concerned with the allocation and registration of Internet number resources in Africa, including information-sharing, training and other support services. It is particularly concerned with technical challenges such as IPv6. Prominent Kenyan Internet professionals have participated on the board of AfriNIC, including Brian Longwe (previously) and John Walubengo (today). There is also an African Top Level Domains Organisation (AfTLD), which represents collective views of the managements of Africa's ccTLDs.

In addition to these entities which are mostly concerned with Internet technical issues, there are some largely technical entities which lie more at the interface between the technical community and other stakeholder groups. Indeed, some of these consciously seek to bring together participants from different stakeholder communities: the KE-CIRT cybersecurity initiative, for example, which is described above, seeks to bring together government and private sector stakeholders in response to cybersecurity threats.

One of the most significant entities of this kind in Kenya is the National Research and Education Network KENET. Its purpose is to connect universities and other research institutions with one another and peer organisations elsewhere in the world, using high capacity bandwidth, thereby enhancing national research and educational capacity for developmental purposes. KENET was initiated in 1999 with support from the Government of Kenya and the USAID Leland Initiative, and has benefited from strong government backing. Since the advent of submarine cables in Mombasa, it has reduced the price of bandwidth for member-institutions from US$4800 TO US$300 per Mb/s per month. KENET is managed by IT specialists from the university sector and is part of the UbuntuNet Alliance of NRENs in Africa, which has recently secured funding from the European Union to further enhance the communications infrastructure for education on the continent.

Technical and professional associations

There are a number of significant specialist associations in Kenya which provide spaces in which the technical and professional community develops common ideas and initiatives. These are, in effect, communities of practice which consolidate personal and professional links through meetings and online discussion lists, which can develop consensus within the national professional community (in the manner that consensus develops in global Internet entities such as IETF), and which can make recommendations to decision-making fora at both national (*e.g.* CCK) and regional (*e.g.* AfriNIC) levels.

At the more general level, members of the technical and professional community participate in the work of associations such as TESPOK (see above) and KICTANet (see below). There are a number of more specialist associations, which include:

- the Computer Society of Kenya, chaired by Waudo Siganga (vice-president for Africa of the World Information Technology and Services Alliance (WITSA)), which acts as an information and training resource for its 6000 or so members;
- the ICT Association of Kenya (ICTAK); and
- the East African Network Operators Group (EANOG), a recently-established discussion group for professionals who are concerned with technical aspects of networking.

Several initiatives have been taken in the past to introduce an Internet Society chapter in Kenya. At the time of the main research for this study, in April 2012, a new chapter was in the process of being established, with the aim of providing a further framework for collaborative thinking and consensus-building. That chapter is now formally constituted and has begun to play a role in the coordination of Kenya's Internet professional community. It co-sponsored the 2012 Kenyan national IGF and has taken over responsibility for organising future national IGFs following the 2012 meeting.

As noted in the previous Chapter, Nairobi has a vibrant community of small-scale Internet-oriented entrepreneurs. Many of these participate in one or more of the associations listed above. They also meet one another more informally in many different venues, and this mix of social and professional interaction adds significantly to the dynamic of their participation in Internet governance. Informal discussions are often just as important as formal institutions in the evolution and use of the Internet.

One of the most interesting networking venues used by the technical and professional community in Nairobi is the iHub, an innovation centre which provides a community workspace, incubator and meeting place, with a high-speed Internet connection, for technologists, programmers, web designers and other Internet entrepeneurs. It is co-located with a number of other IT ventures, including Frontline SMS and Ushahidi.

Finally, it should be noted that several online discussion lists and blogs play significant parts in influencing thinking within the Internet technical and professional community. Informants for this study reported, in particular, participating in the discussion lists of KICTANet, EANOG and the nascent ISOC chapter. Blogs which were considered useful or influential by informants included the technical forum Skunkworks and that of the co-founder of Ushahidi, Erik Hersman.

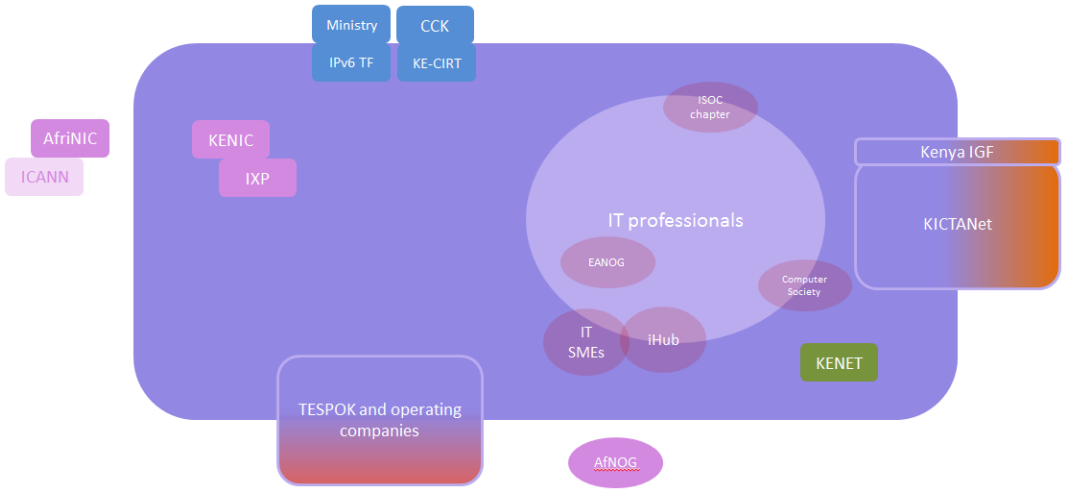
While there are a number of technical and professional specialists who are strongly engaged with Internet governance in Kenya, there are many other people working in the ICT and Internet sectors in the country who do not engage with Internet governance issues. Even among the Internet-savvy entrepreneurs interviewed for this study at the iHub, there was a good deal of ignorance about the meaning of 'Internet governance', as well as about the issues that are currently debated in Internet governance fora, about Internet governance

initiatives underway in Kenya, and about prominent initiatives such as KICTANet and the Kenya IGF. Only a small number of this growing group of Internet entrepreneurs is actively engaged in Internet governance discussion fora or on the discussion lists identified above. This appears to be even more true of the larger group of IT professionals that work within the private sector and government agencies. These people are busy with their jobs, making use of the Internet, and are either uninterested or too busy to engage with governance issues.

Mapping the Internet technical and professional community

As described above, the Internet technical and professional community is complex and diverse. Figure 19 seeks to illustrate it in the same overview mapping framework that has been used for other stakeholder groups.

Figure 19: Mapping the Internet technical and professional community in Kenya



d) KICTANet : a multistakeholder partnership

Before discussing civil society stakeholders, it is important to describe a multistakeholder initiative which has been highly influential in the Kenyan ICT and Internet governance environment during the past decade. This is the Kenya ICT Action Network, KICTANet.

KICTANet was initially established in 2003, with support from the UK Department for International Development's CATIA programme ('Catalysing Access to ICTs in Africa'). It aims to 'provide a structure for networks and organisations that share or support common goals on ICTs in Kenya' to work together in pursuit of those goals – in particular 'improving the effectiveness of ICT policy processes by expanding [the] base for support of ICT initiatives,' acting as a dissemination channel for information about ICT policy and regulation, and linking together like-minded organisations. During the first decade of the 21st century it provided a forum for dialogue between civil society and private sector actors in the Kenyan ICT sector, and became an influential representative body in discussions about the role and nature of regulation and the development of market competition. It was responsible for organising the Kenyan IGF from 2008 to 2012, initiated the East African IGF in 2008 and continues to play an important part in both annual events. In recent years, participation in KICTANet has broadened further, to include government representatives, including senior government personnel. It can, therefore, be described now as encompassing the whole range of stakeholders described in this Chapter of the report.

KICTANet has played an important role as a discussion forum and agent for change in the Kenyan Internet governance environment over the past decade. It is difficult to identify comparable organisations – with the same participation spread – in other countries, in Africa or beyond, and it has been promoted as a model for multistakeholder engagement. While generally regarded as successful by informants for this assessment, there was some uncertainty among informants about its future role and direction. Some felt that it needs to restructure and revitalise in order to adjust to changes within the Internet market and the multistakeholder environment. There has been discussion on its online list about the desirability of a root-and-branch review of its future role. It was also noted during research for this assessment that the name KICTANet was unfamiliar to quite a few informants, including entrepreneurs at the iHub who might have been expected to be interested in its work. Few who have observed the Internet governance environment in Kenya, however, would deny that it has played a central role, or that comparable organisations would add value in other countries. It has been very successful in raising interest and involvement in ICT and Internet governance and in including diverse stakeholder groups in discussions and decisions.

e. Internet users and civil society

Defining civil society is never easy. The simplest definition is to describe it as 'none of the above' – *i.e.* everything but government agencies, private sector businesses and the Internet technical and professional community. However, many in the technical and professional community regard themselves as members of civil society as well as Internet specialists.

In the UN system, and in most international public policy domains, civil society is largely represented by organisations – development and rights agencies, environmental and consumer organisations, trades unions, faith and women's groups *etc.* However, these have been much less evident in international Internet fora, where individual academics and activists have been more prominent, along with some specialist ICT and Internet agencies.

In the very broadest sense, Internet civil society is made up of users of the Internet and of the wider group of people – in practice, almost everyone – whose lives are affected by it.

How does this understanding of civil society translate at national level in a country such as Kenya? One way to approach it is to structure civil society in three tiers:

- the wide community of citizens and consumers, in their different categories;
- organisations that represent specific interest groups within the population, including specific consumer groups; and
- organisations and individuals that are active in Internet governance processes and fora.

Users, citizens and consumers – 'the general public'

Users of the Internet today are highly diverse, and have differing needs and priorities. They include government departments and private sector companies (as described above) and non-governmental organisations (as described below), as well as individuals.

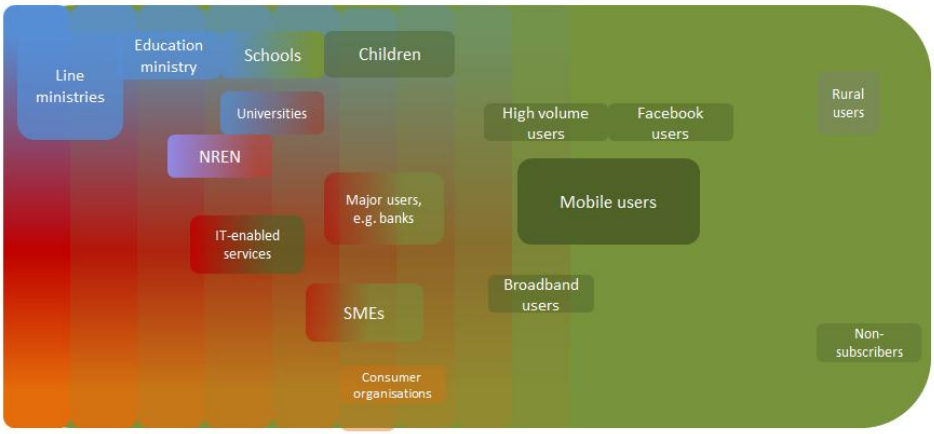
Most – increasingly, one might say, all – individuals are affected in some way, directly or indirectly, by the Internet and so have a stake in Internet governance, even if that is just to do with the Internet's potential to facilitate national developmental outcomes. In this context, individuals' identities become complex. They can be regarded, for example, as citizens (in relation to the Internet's overall impact on society) and as consumers (in relation to their own use of the Internet). The Internet impacts differently on different aspects of their

identities – their gender, geographical location and communities, families, age grade, employment or occupational group, income category, level of vulnerability, *etc.* The impact of the Internet on different individuals may be great or small, depending partly on the Internet's availability to them and partly on their choices about how to make use of it – for example, whether or not they make use of mobile Internet or social networking. The level of that impact may change quickly or suddenly as their opportunities and choices change.

It is important to appreciate, too, that the range of stakeholders in the Internet does not end at Internet users: the Internet affects the lives and livelihoods of those who do not use it as well as those who do, from the vulnerable old to the impoverished who can't afford it; from those who explicitly reject using it to young children whose use of it lies in the future. Future generations, too, can be described as stakeholders in the Internet, especially where it impacts on the kind of societies in which they will live and the sustainability of its environmental footprint.

It is easier to illustrate this broad range of users, citizens and consumers than to identify where it participates in Internet governance arrangements. Those user groups that are identifiable are more generic than stakeholder groups in other categories. Those groups in Kenya, for example, are broadly similar to those that will be found in other sub-Saharan developing countries. A broad picture of these user groups, intended to be illustrative rather than comprehensive, and including business and government users as well as individuals, is set out in Figure 20.

Figure 20: Mapping Internet users



Few individual users, citizens or consumers become actively involved in Internet governance, and those that do are inherently not representative. As several interviewees for this report remarked, what people in general want is access to the Internet and the services it makes available, not the opportunity to discuss IPv6. Their concerns lie in securing access to what they see as new opportunities – social networking and online shopping, for example – and in addressing areas of public policy where the Internet is seen as threatening to social norms or social order – such as sexually explicit content and cybercrime. Priorities and opinions of users are clearly likely to be divided, but there has been very little survey evidence to detail them in countries such as Kenya. Understanding 'public opinion' about the Internet has so far proved one of the weaknesses of the multistakeholder model, and is something about which Internet governance institutions need to think more deeply.

Civil society organisations

In practical terms, many of these broad brush concerns of the public are most visibly expressed through the media – newspapers, radio phone-in programmes, *etc.* – and through political representatives such as elected

parliamentarians. The mainstream media in Kenya has not played a significant part in Internet governance discussions (and is not yet as threatened by Internet-induced changes in advertising models as it is in industrial countries). Some parliamentarians have become interested and active in Internet governance discussions, particularly those on the relevant parliamentary committee (see above).

In Kenya, as in other countries, civil society tends to work through organisations, including faith groups, professional associations, farmers' groups, trades unions, charities, and activist groups concerned with issues such as rights, development and the environment. Few of these have participated significantly in Internet governance discussions either in Kenya or (surprisingly) at a global level, and, where they have engaged, they have usually done so on public policy issues that particularly interest them: faith groups have been especially concerned about sexually explicit content, for example, about freedom of conscience and about issues of 'offence to religion'; rights organisations have been concerned about the implications of monitoring of Internet behaviour by companies and governments. Some mainstream civil society organisations took the opportunity to participate in the global IGF when it was held in Kenya in 2011, but no participant list is available on the IGF website. One Kenyan development agency that has taken a more general interest is the Arid Lands Information Network (ALIN).

The most significant civil society organisations from outside the Internet to engage in Internet governance discussions in most countries are consumer organisations and organisations concerned with freedom of expression. Consumer organisations, in this context, represent the demand side of the Internet in the same way that business associations represent the private sector. In the case of Kenya, these include the Consumers Federation of Kenya, which addresses consumer issues across the board, and the ICT Consumers Association of Kenya, which focuses on the ICT and Internet sector.

There are a few civil society organisations which have participated in greater depth in Internet governance in Kenya, either generally or on specific issues, though these are usually made up of Internet or communications professionals with a profound interest in the sector (see above). KICTANet and the Kenya IGF provide much easier opportunities for their engagement than are available in many other developing countries. The international civil society organisation APC (the Association for Progressive Communications) and the Canadian-government-funded International Development Research Centre (IDRC) have played a part in supporting civil society engagement in the country.

Finally, there are a number of individuals who come to the Internet from a public policy rather than technical perspective, including academics, consultants, journalists and bloggers. Some of these were consulted in the course of this research.

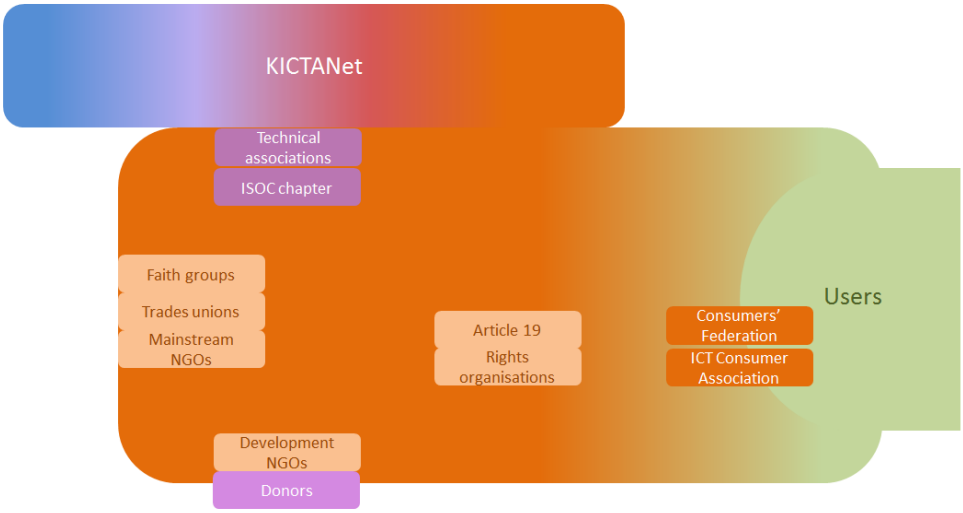
Mapping civil society engagement

Civil society involvement is often emphasised in discussions of multistakeholder participation in Internet governance, and Internet governance associations, including ISOC, are keen to promote it. There is some confusion as to whether the term 'civil society' represents society at large – users, citizens and consumers – or whether it represents organised civil society – *i.e.* non-governmental organisations other than private businesses. There are also considerable overlaps between civil society engagement and that of the Internet technical and professional community.

Civil society participation in Internet governance processes and fora in Kenya is concentrated among those that have a strong interest in the Internet. Representation of users in general is weak, as it is in most countries, and dependent on intermediaries such as the media, parliamentarians and consumer associations. KICTANet and the Kenya IGF have provided channels through which a wider range of organisations can engage

with Internet governance but these have not been taken up by a very wide range of NGOs. The range of civil society participation discussed above is illustrated in Figure 21.

Figure 21: Mapping civil society engagement with Internet governance in Kenya



f. Mapping Internet governance stakeholders in Kenya

Chapter 3B of the report has emphasised the complexity and diversity of stakeholder groups in Internet governance in Kenya within the broad taxonomy of multistakeholder participation which has been generally adopted by those involved in Internet governance.

The extent to which different groups participate in Internet governance in Kenya is highly variable.

- Technical Internet governance discussions largely take place within the Internet technical and professional community, those parts of the private sector that supply the Internet and some government agencies. However, many in the technical and professional community pay little attention to governance issues.
- Government agencies (particularly the Ministry of Information and Communications and the regulator CCK) and supply-side businesses are particularly concerned with issues of access and infrastructure.
- Public policy and development implications of the Internet are strongly addressed by some government institutions, such as the ICT Board, and their international partners.
- Civil society participation is stronger than in most developing countries, but is still focused very much on organisations and individuals which have particular concerns in the ICT and Internet sector. Mainstream NGOs are not participating significantly.
- While there is a significant amount of research available into people's use of the Internet, there is much less evidence about users' attitudes towards the Internet's impact on society and other Internet governance issues.

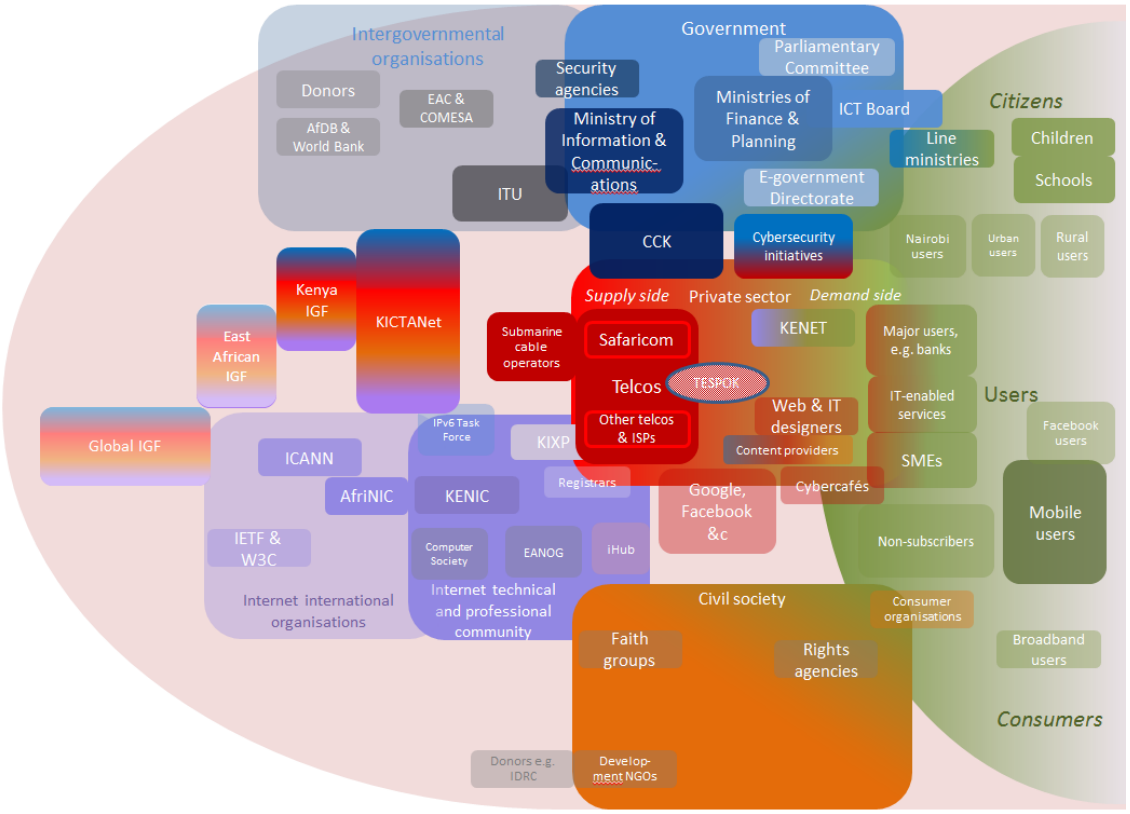
KICTANet and the Kenya IGF have provided significant fora for multistakeholder discussion, of a kind not found in many African countries, and delegations to international meetings (such as WSIS, ICANN and the global IGF) have include diverse stakeholder representatives.

As mentioned earlier, a number of individual personalities have played strongly influential roles within the Internet community and the Internet governance environment. The prominence of influential individuals is

not unusual in national Internet environments, partly because the Internet has grown so rapidly: considerable status is attached to those who have been pioneers in its development. It is a feature of Internet governance, however, which is quite difficult to map along the lines used in this assessment.

The maps of different broad stakeholder communities which have been included in the discussion above need to be simplified in order to create a useful overall map of Internet governance stakeholders in Kenya. Figure 22 draws selectively on the markers for particular stakeholder groups in Figures 16-21 to create an overall picture based on the generic stakeholder map in Figure 15.

Figure 22: An overview map of Internet governance stakeholders in Kenya



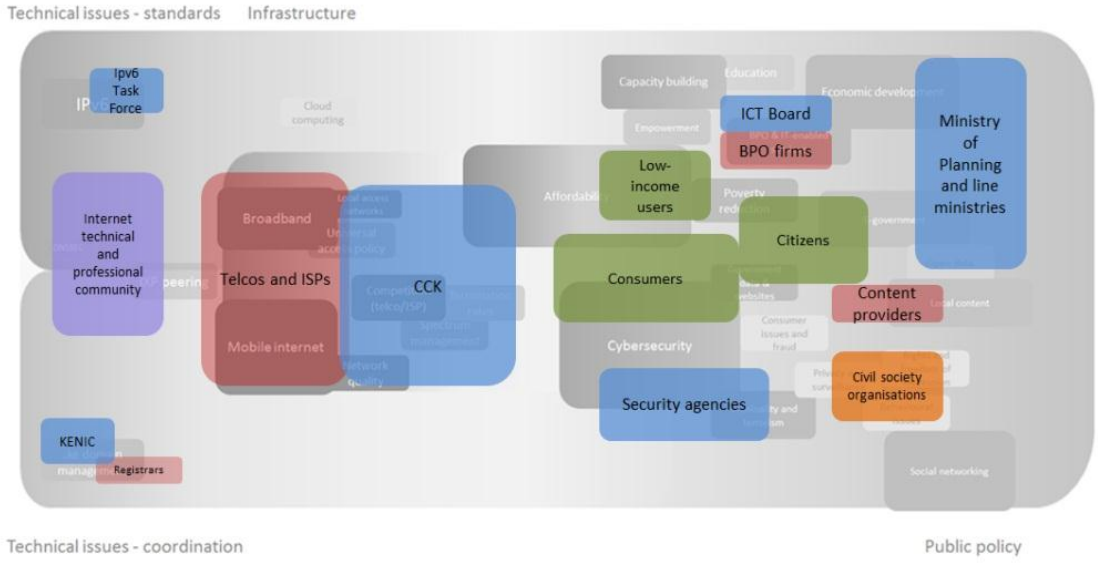
The table in Figure 12 provides one starting point for juxtaposing these stakeholder groups with the issues which were discussed in the previous chapter of the report. Figure 23 adds to that table a second column identifying the stakeholder groups which are most significantly involved in each of the major issues that were identified in Figure 12. Like the overview map above, this is a selective rather than a comprehensive representation, which is intended to focus attention on the most important relationships between stakeholders and issues.

Figure 23: The relationship between issues and stakeholder groups

Governance area	Issue	Principal stakeholders
Technical	Deployment of IPv6	Telcos, ISPs, designers & users of Internet systems
	Deployment of DNSSEC	Internet professionals, IT managers, telcos, ISPs
	Cloud computing	Google & other major operators, large data users
	Management and marketing of the .ke domain	KENIC, registrars, users of .ke domains
	Peering through IXP	ISPs (inc. telcos), users
Access and infrastructure	National broadband infrastructure	Government, CCK, telcos, high volume & other users
	Local access networks	Government, CCK, telcos, users
	Universal service policy	Government, CCK, telcos, rural & low-income users
	Mobile Internet versus fixed access	Investors, telcos, users, cybercafés, content providers
	Network quality and reliability	Users, telcos, ISPs, CCK
	Spectrum availability and management	CCK, telcos
	Affordability, including termination rates	Users, low-income users, CCK, telcos, ISPs, cybercafes
	Competition in telecoms markets	CCK, telcos
Public policy issues	Social and economic development	Government (planning & line ministries), donors, citizens
	Economic growth and poverty reduction	Government (planning & line ministries), donors, business
	BPO and IT-enabled services	Government, ICT Board, IT&O Society, BPO/ITES sector
	E-government	Directorate of e-government; line ministries
	Cybersecurity	Government, telcos, business and other users
	Government data and websites	Government agencies and ministries
	Consumer issues and fraud	Citizens, businesses
	Criminality and terrorism	Government, citizens
	Privacy and surveillance	Government, citizens
	Local content	Users, media, local IT and content businesses, govt, NGOs
	Open data	Government (agencies and line ministries)
	Capacity-building	Government, businesses requiring IT skills, users
	Behavioural issues (including child protection)	Users, politicians
	Freedom of expression and rights issues	Government, users, politicians, rights NGOs
Governance arrangements	Technical discussion spaces	IT/Internet techical and professional community
	Role of national IGF	All

These relationships can also be represented graphically by overlaying the most significant stakeholder groups on the overview map of issues (Figure 14), as illustrated in Figure 24. Looking at the relationships between stakeholders and issues in this way is helpful in clarifying where interest, concern and responsibility lie for particular issues, and also identifying gaps in which there is a lack of relevant participation. Maps like this, for example, can help to identify where – even if there is multistakeholder participation in Internet governance overall – participation in efforts to address particular issues is not in practice multistakeholder but predominantly lies within one or two stakeholder groups.

Figure 24: The relationship between issues and stakeholder groups



CHAPTER 3C: DECISION-MAKING PROCESSES AND FORA

a. Overview

There is, inevitably, considerable overlap between some of the stakeholders described in the previous Chapter and the processes and fora through which decisions are made in Kenya's national Internet governance environment. This Chapter of the report seeks to juxtapose decision-making structures with the issues and stakeholder communities described above.

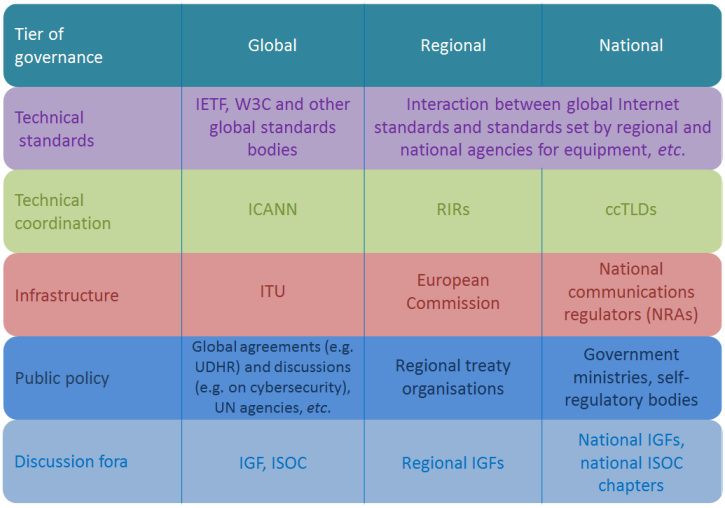
The Internet is a global medium. Many of the decisions which affect its development take place in global processes and fora which are concerned with standardisation (such as the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (W3C)) and coordination (such as the Internet Corporation for Assigned Names and Numbers (ICANN)). The Internet Governance Forum (IGF) provides a global discussion space in which issues of Internet governance can be explored without actual decisions resulting from them. Significant technical and policy outcomes concerning the relationship between the Internet and its underlying communications infrastructure, including spectrum management, result from discussions and decisions in the International Telecommunication Union (ITU). Aspects of the Internet's impact on economic and social, political and cultural life have strong global dimensions and are increasingly discussed in global fora within and beyond the United Nations group of agencies, as well as being of interest to multilateral and bilateral donors.

Alongside these global fora, there are also significant regional entities. Regional Internet Registries (RIRs), including AfriNIC, play an essential part in coordinating the domain name and number system. Recent years have seen the development of a number of regional IGFs, including the East African IGF. Telecommunications regulation and spectrum management are supported by regional and subregional entities with varying degrees of decision-making power, including the regional regulatory associations EACO and ARICEA in which Kenyan ICT stakeholders play their part. Policy frameworks that seek to exploit Internet services and applications in economic and social development have been agreed by a number of continental and regional intergovernmental organisations of which Kenya is a member, including the African Union, the African Development Bank, the East African Community (EAC) and the Common Market of Eastern and Southern Africa (COMESA).

The importance of Internet governance at national level, however, should not be underestimated. While the technical standards for Internet governance are inherently global, what can actually be achieved in individual countries depends on many factors which are country-specific, such as the quality of available national infrastructure and its international connectedness. National communications policies and regulations are important factors in determining how infrastructure, access and affordability evolve. National communications ministries and regulatory agencies are therefore important decision-making fora. Country-level domains are managed by national entities of varying kinds (some governmental, some private sector, some non-profit or civil society). ISPs may be national or international, may work together in ISP Associations and may exchange traffic through national IXPs. Governments in many countries have agreed national strategies to exploit ICTs and the Internet to meet development objectives and to deliver services through e-government. Legislation and social norms differ from one country to another, particularly in areas such as content regulation. An increasing number of national IGFs has been established to provide a forum for discussion about the Internet at national level and feed into regional and global IGFs.

The relationship between these global, regional and national tiers of Internet governance is illustrated in Figure 25.

Figure 25: Decision-making processes and fora – an illustrative outline framework



This chapter looks at decision-making processes and fora within Kenya and their links with international processes. It looks in turn at processes and fora in three areas which are consistent with those discussed in the Issues Chapter earlier in the report:

a. processes and fora which are concerned with the **technical governance** of the Internet;
b. those which are concerned with the Internet's underlying **infrastructure**; and
c. those which are concerned with **public policy issues** that are affected by the Internet.

The final part of the chapter considers deliberative fora without decision-making power, especially the Kenya IGF.

It is important, in assessing how decisions are made in all these areas, to look beyond institutional structures to the power relationships within society.

- Decisions which ostensibly take place within specific institutions may in reality be made elsewhere, by agreements between organisations – or indeed individuals – with political or economic power and influence.

- Many choices which affect outcomes (for example for consumers) are made not within formal decision-making bodies but by individual companies acting in their own interests. The Internet today is overwhelmingly delivered to its users by private sector businesses – telecommunications companies, ISPs, search engines, social networks, *etc.* – many of which have global reach and whose decision-making is only partly, if at all, influenced by their customers in individual national markets.

- A great deal of decision-making power lies within these global enterprises, as well as in the interstices of multistakeholder bodies like ICANN. More traditional intergovernmental institutions like the ITU and the national ministries of communications and regulatory authorities that work with it strongly influence or direct the way that communications infrastructure is deployed and communications markets evolve.

- Nevertheless, many developments in the Internet world and many impacts of the Internet result from the informal decision-making of end-users rather than the plans of governments, companies or multistakeholder entities. The rapid adoption of crucial innovations on the Internet has taken much of the

Internet community and many Internet businesses by surprise – including the growth since 2005 in mobile Internet and social networking.

b. Technical decision-making

As noted above, much technical decision-making on the Internet, concerned with standardisation and coordination, takes place in global governance entities such as the IETF, W3C and ICANN. This is not the place to discuss these in detail. However, it is often noted that discussions in these entities tend to be dominated by participants from Northern countries and companies, with Africa in particular being under-represented. Kenyans have played a more prominent part in ICANN, at least, than most African countries, including on its Governmental Advisory Committee. Kenya's profile in global Internet governance was also boosted by its hosting one of ICANN's two annual global meetings in 2010 and the global IGF in 2011. Some Kenyan ICT stakeholders – notably the MOIC permanent secretary at the 2012 Kenya IGF – have argued that Kenya's influence over Internet developments will be stronger if there is more collective African agreement on ways forward. At a regional level, the most important Internet governance entity is the African Regional Internet Registry, AfriNIC. This is responsible for the allocation and registration of Internet number resources on the continent, acting as the regional tier between ICANN at global level and national ccTLDs. Like ICANN, AfriNIC is a multistakeholder organisation. Individual Kenyans have played a significant part in its activities, including board membership.

Other technical decisions which strongly affect the experience of Kenyan Internet users are made within multinational companies, and are less susceptible to local influence. These include the development of standards for mobile handsets, and the development of application platforms which are widely used in Kenya, such as Google and Facebook. Technical decisions taken within telecommunications operating companies also have a significant impact on the way in which the Internet becomes available to Kenyan users, including the amount of available bandwidth in different locations, and the quality of access.

At national level, coordination of the .ke domain is managed by KENIC, which is described in the previous Chapter. KENIC is, of course, only responsible for .ke domains, not those registered with gTLDs. The Kenya IXP also has an important technical and coordinating role, though it is not involved in policymaking. Government agencies, and multistakeholder or public/private partnerships coordinated by government agencies, play a significant part in technical governance of the Internet in Kenya. CCK, the ICT Board and the Directorate of e-Government all play a part in other governance bodies.

As noted earlier, CCK is also responsible for a critical government process concerned with cybersecurity, KE-CIRT, the Kenya Computer Incident Response Team Coordination Centre, whose mandate is to coordinate responses to incidents nationally and to collaborate with international partners on cybersecurity issues in general. KE-CIRT brings together government agencies including the ICT Board and the Directorate of e-Government, national law enforcement agencies, the Central Bank of Kenya, and three Internet community organisations – TESPOK, KENIC and KENET. It is supported by an administrative agreement with the ITU, which contributes 30% of the project cost. Some informants for this report felt, however, that KE-CIRT had not yet shown its ability to address the cybersecurity challenges facing Kenya. The US Trade and Development Agency tendered in 2011 for an expert consultancy to develop a National Cybersecurity Plan for Kenya, which it has agreed to fund.

Another significant government-led technical governance decision-making process is the national IPv6 Task Force, which was formed in 2008 and is chaired by MOIC with KENIC acting as secretariat. Its original aim was, through awareness raising, capacity building and research, to 'develop policies and guidelines to make the country achieve a national-wide transition to IPv6 by 2010.' That deadline has obviously passed, and some

informants were critical of the effectiveness of this Task Force in light of the limited progress made to date – though that experience is far from limited to Kenya.

c. Decision-making concerned with infrastructure

Decision-making concerned with infrastructure demonstrates clearly how governance of many aspects of the Internet is multifaceted – in this case, particularly, a result of interaction between two separate poles of decision-making in business and government.

It is communications operating companies that have direct decision-making power over the development of infrastructure and the terms on which access to that infrastructure is available to ISPs, Internet-enabled businesses and citizens. Investment in infrastructure is primarily – though not, in Kenya, entirely – undertaken by private companies. Private company decisions are taken in the interests of shareholders, based around their estimations of (short and long term) supply and demand, and bounded by the competitive markets in which they operate. In Kenya, the most important direct decisions about infrastructure are taken, therefore, by the companies that supply telecommunications and Internet access to subscribers – Telkom Kenya, Safaricom (which is particularly powerful in determining infrastructure outcomes because of its dominant market share), Airtel and Essar, the companies that own the international submarine infrastructure to which they now connect, and other facilities providers such as KDN.

Indirect decision-making power, meanwhile, is held by government agencies which seek to influence infrastructure, foster investment and (sometimes) invest themselves in infrastructure deployment in the public or national interest (as government determines it). The most important players in this context, in Kenya, are the three leading government institutions – the Ministry of Information and Communications, the regulator CCK, and the ICT Board. All of these, to some degree, are supported by international donors, influenced by Parliament, and informed by consultation processes they undertake with other stakeholders and the community at large.

The principal locus of decision-making on infrastructure lies, therefore, in the traditional communications policy and regulatory interface between large businesses and political/regulatory agencies. Political and regulatory decisions create the enabling environment in which infrastructure providers make decisions on investments, service innovations, interconnection charges and end-user tariffs. In Kenya, this means that the locus of decision-making lies primarily between the telcos (especially Safaricom because of its market dominance) and the government. Most relevant governmental authority resides with CCK, which has powers to influence the direction of investment, including investment in rural areas, and to make services more affordable by regulating interconnection rates and/or retail tariffs.

d. Decision-making on public policy issues

Decision-making on wider public policy issues can be said to lie across the stakeholder spectrum, though it is government that has the power to make laws and regulations.

Much of what happens on the Internet is determined by users, or by the relationship between the supply and demand sides of the Internet – between telecommunications businesses and ISPs, platform and content providers such as Google and Facebook, and individual citizens and consumers. It is users that have made mobile phones the predominant mode of access in Kenya, and that have adopted social networking in such numbers (as they previously adopted mobile transactions) – not governments or regulatory authorities. The infrastructure and services which enable them to make these choices and to use the Internet in ways that suit them depend on decisions made by (mostly) international businesses. In short, public policy outcomes are not necessarily, and certainly not wholly, the result of public policy decision-making.

This is even true in connection with development, a principal objective for Kenya's governmental stakeholders. The deployment of communications networks across the country has been determined more by commercial interests than by government policy concerned with access and affordability. However, government agencies – notably MOIC and CCK – have had substantial influence, through their policy decisions and regulatory determinations – on access and affordability outcomes. MOIC has been the principal forum in which national development objectives for ICTs and the Internet have been articulated, with responsibility also belonging to the ICT Board and the e-Government Directorate within government, and to external development actors (International Financial Institutions, multilateral and bilateral donors) which have supported their initiatives.

Priorities for public expenditure and for the use of ICTs for delivering government services in other areas, such as education and health, agriculture and entrepreneurship, are also determined within government. However, external development agencies also play a role in this context, through the processes by which they allocate development funding. Public-private partnerships have offered a new model of decision-making through collaboration and consensus, which has been particularly valuable in a number of areas – for example, in the use of ICTs to modernise the port community system at Mombasa port. Development and other NGOs also play a part in the decision-making process, not by making decisions themselves but by seeking to influence those that are made by government. Much the same might be said of the press. While formal policymaking on developmental uses of the Internet is primarily located within government, in other words, it also emerges from consultation and dialogue among a wider range of stakeholders.

KICTANet has been an important actor in public policy discussions around the Internet, providing a forum for the collective development of ideas, and for advocacy, involving civil society and private sector actors and more recently also government personnel.

e. The Kenya Internet Governance Forum

The Kenya Internet Governance Forum was the first national IGF to be established after the launch of the global IGF in 2007. Its first meeting, in October 2008, fed into the first East African IGF, which was held in Nairobi the following month. These two initiatives, both led by KICTANet, have had global influence: they were enthusiastically welcomed at the global IGF and have led to widespread replication in other world regions. They were a significant factor determining Kenya's high profile and status in global IGF meetings, even before the 2011 global IGF was held in Nairobi.

To date, five Kenyan IGF meetings have been held, in each year from 2008 to 2012. Kenya also hosted the East African IGF meetings in 2008, 2009 and 2012, while Kenyans played a major part in those that were held in Uganda and Rwanda in 2010 and 2011.

Like their global counterparts, these national and regional IGFs are discussion fora with no decision-making powers. They have been seen as opportunities both to discuss issues of national importance and to develop Kenyan input into the global IGF. KICTANet has played the leading role in coordinating Kenya's national IGF, doing so in 2012 in conjunction with TESPOK, ISOC Kenya and KENIC, but with the coordinating role passing to the newly-established Kenyan ISOC chapter at the end of the 2012 meeting.

The national IGF has had two distinct elements:

- An online discussion, held over a one or two week period, with scheduled discussions on five or six distinct issues ahead of sessions which have been planned for the plenary meeting. In 2012, this online discussion was held on the online lists of KICTANet, ISOC Kenya and Skunkworks, and focused on different

issues, day by day, over a week-long period. Online discussions have attracted a small number of participants with a relatively high level of knowledge.

- A subsequent day-long physical plenary meeting, with keynote speeches and presentations delivered by major personalities and experts within the national communications sector and elsewhere. In 2012, for example, the keynote speaker was the permanent secretary at MOIC, Bitange Ndemo, and there were a number of other speakers from government, civil society organisations such as Article 19, and international agencies including ISOC and the African Telecommunication Union. The plenary meeting has attracted a larger number of participants than online discussions, but has been structured around presentations which have preceded question-and-answer rather than open discussion sessions.

Each annual meeting has focused on a number of specific issues identified by the Forum's organisers, most of which have been discussed both online and in plenary.

- The 2011 meeting focused on mobile Internet, broadband, cloud computing and cybersecurity/privacy, with additional online discussion of the principles of Internet policymaking and processes in Internet governance in Kenya.
- The 2012 meeting explored a different range of issues in both online and plenary sessions – in particular the government's open data and e-government initiatives, forthcoming freedom of information legislation, intermediary liability, and two global Internet policy issues, the outcome of ICANN's invitation for proposed new gTLDs and forthcoming revision of the ITU's International Telecommunication Regulations (ITRs).

As well as some of these issues, especially cybersecurity and broadband, earlier meetings focused on the impact of submarine cable developments on Kenya's Internet market and opportunities, the management of critical Internet resources, the management of the .ke ccTLD, and the desirability of a regional IXP. Some of these have been issues of particular importance in the year of the meeting concerned; others have been issues about which the Forum organisers have felt it is important to build awareness and understanding through presentations and discussion. The Forum has therefore served as a mechanism for addressing both current and future concerns.

Participant numbers are not recorded on the national IGF website. However, participation has been respectable in both numbers and diversity. Participation in the online discussions that have preceded national meetings has been much more limited, but these have served a useful probouleutic function, helping to focus discussions at the main event.

These national IGF meetings do not have decision-making powers. Their role is essentially to foster discussion, raise awareness and exchange views. Many of their participants already engage in dialogue on online lists and in other meetings – Nairobi is a preferred location for international ICT conferences targeting the country, region or even continent – and the community of people interested in Internet governance is small enough that those involved are in regular contact with one another. Comments on the national IGF from informants for this assessment suggest that it serves two purposes which are not also served by online lists and other meetings within the sector:

- It helps to set an overall agenda for thinking about the future of the Internet in Kenya – and does so in a forum which is attended by industry leaders (at least from government).
- It provides a space which allows participants who are less familiar with Internet governance issues to learn more about their implications and to express their perceptions in dialogue with Internet specialists.

There has been some discussion about the role of the national IGF in relation to its global counterpart. Some national IGFs have seen themselves as feeder events to regional and global IGFs, and therefore concentrated

on issues that are being discussed at global level (such as the role of ICANN). Others – and Kenya's seems to fall more into this group – have looked inward rather than upward, concentrating on issues that are important within the national context and on ways in which international challenges for the Internet affect the national environment.

Not everyone, however, is by any means involved within this process. Some Internet specialists interviewed for this report said that they did not take part in the national IGF, either because it was insufficiently expert or because its outcomes were not influential. Others thought it needed to review, clarify and redefine its purpose. Meanwhile, a surprising number of Internet-savvy entrepreneurs interviewed at places like the iHub proved to be unfamiliar with the national IGF or even unaware of its existence. These are important stakeholders whose views on the future of the Internet should be heard in a discussion forum of this kind. The visibility of the national IGF is not helped by the absence to date of any summaries on its website of discussions at the 2011 and 2012 events. These issues need to be addressed if the national IGF is to maintain its influence as an agenda-setting forum, and will be challenging for the ISOC national chapter which has now taken responsibility for its organisation.

f. Mapping decision-making processes and fora

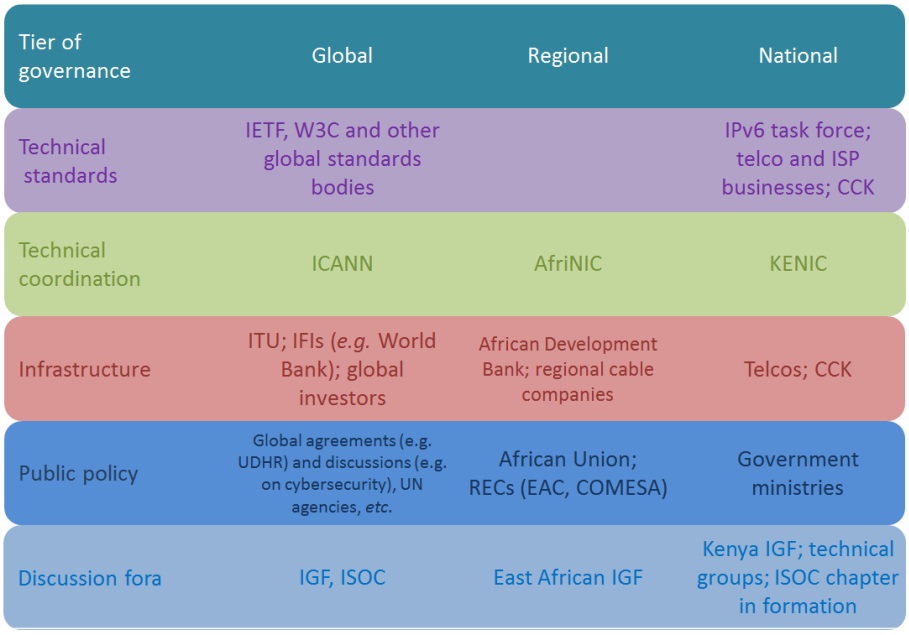
As noted above, Kenya has gained a substantially higher profile in Internet governance than most African countries because it has recently hosted global meetings of ICANN and the Internet Governance Forum. The fact that these global meetings have been held in Kenya means that more Kenyans have been exposed to them, raising awareness, understanding and the likelihood that they will participate in them in future. It has also boosted Kenya's profile and influence in international Internet governance.

Kenya has played an active part in the Governmental Advisory Committee (GAC) of ICANN. Kenyan individuals and especially KICTANet have been prominent in the organisation of the East African IGF, while a number of Kenyans have played influential roles over the years in AfriNIC, the African Network Operators Group AfNOG and the African ISP Association AfrISPA (of which TESPOK is a member). CCK is engaged in the work of the ITU, is participating in cybersecurity partnerships organised by the ITU (IMPACT) and by the Commonwealth IGF, and plays an important part in the regional regulatory associations EACO and ARICEA.

Kenya's profile in international ICT and ICT4D decision making has been fostered by a number of factors other than the hosting of global ICANN and IGF meetings. The Kenya/East African IGFs, KICTANet and CCK have all established strong and positive reputations in international ICT and development sectors. Development agency interest has been attracted by the struggle and eventual competition to provide submarine connectivity to East Africa, by innovations in service delivery such as the effective abolition of mobile roaming in the region, by the success of the MPESA mobile transaction service, by the dynamism of the local mobile Internet market, and by the development in Kenya of innovative applications such as Ushahidi. Although these are not all Internet-specific developments, they have made the Kenyan market more familiar internationally than almost all others in sub-Saharan Africa (alongside those of South Africa, Nigeria, Ghana, Senegal and perhaps Rwanda) and opened up more opportunities for Kenyan participation in international Internet governance. Nairobi has also become a preferred location for conferences and workshops on ICT and Internet developments in Africa.

There are a number of ways in which these decision-making processes and fora can be summarised. The overall structure at national level can, firstly, be set alongside global and regional processes and fora by adapting the diagram at Figure 25 to Kenyan circumstances. This is illustrated in Figure 26.

Figure 26: Global, regional and Kenyan national decision-making processes and fora



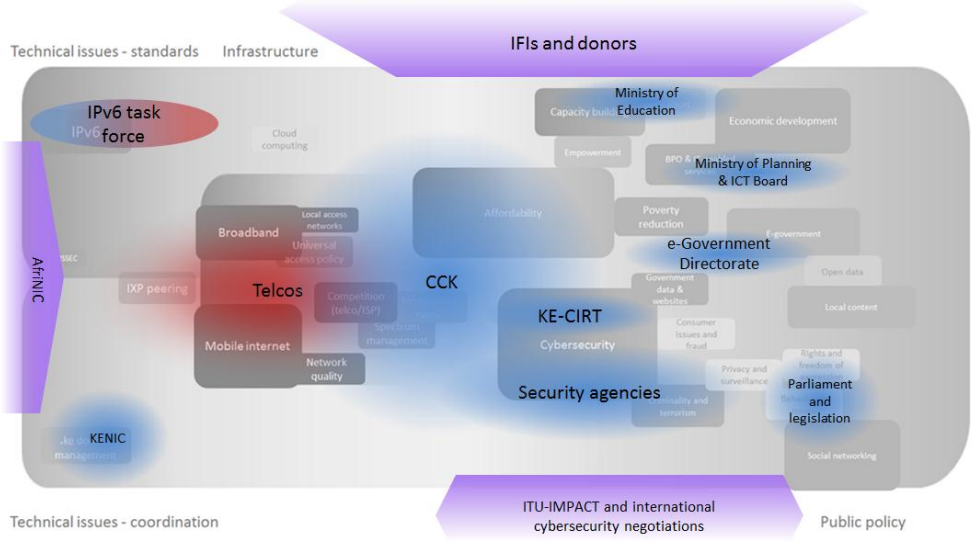
The roles of these processes and fora can also be set alongside the issues and stakeholders identified earlier, to compete the matrix of issues, stakeholders and decision-making presented earlier in the report. The completed matrix is set out in Figure 27.

Figure 27: The relationship between issues, stakeholder groups and decision-making processes

Governance area	Issue	Principal stakeholders	Decision-making processes	Related international fora
Technical	Deployment of IPv6	Telcos, ISPs, designers & users of Internet systems	IPv6 Task Force	ICANN, AfriNIC
	Deployment of DNSSEC	Internet professionals, IT managers, telcos, ISPs	KENIC, IPv6 Task Force	ICANN, AfriNIC
	Cloud computing	Google & other major operators, large data users	Telcos, ISPs and data businesses	External Internet platforms (e.g. Google)
	Management and marketing of the .ke domain	KENIC, registrars, users of .ke domains	KENIC	ICANN, AfriNIC
	Peering through IXP	ISPs (inc. telcos), users	KIXP; telcos and ISPs	International ISPs
Access and infrastructure	National broadband infrastructure	Government, CCK, telcos, high volume & other users	Ministry of IC, telcos, CCK	IFIs and regional organisations; investors; ITU
	Local access networks	Government, CCK, telcos, users	Telcos, CCK	International telco management
	Universal service policy	Government, CCK, telcos, rural & low-income users	Ministry of IC, CCK	IFIs
	Mobile Internet versus fixed access	Investors, telcos, users, cybercafés, content providers	Users, CCK	
	Network quality and reliability	Users, telcos, ISPs, CCK	Telcos, CCK	
	Spectrum availability and management	CCK, telcos	CCK	ITU
	Affordability, including termination rates	Users, low-income users, CCK, telcos, ISPs, cybercafes	Telcos, CCK	Regional regulatory associations; regional operators
	Competition in telecoms markets	CCK, telcos	CCK	ITU; investors
Public policy issues	Social and economic development	Government (planning & line ministries), donors, citizens	Ministry of IC, ICT Board	IFIs and donors
	Economic growth and poverty reduction	Government (planning & line ministries), donors, business	Ministry of Planning, Ministry of IC, ICT Board	IFIs and donors
	BPO and IT-enabled services	Government, ICT Board, IT&O Society, BPO/ITES sector	Ministry of Planning, Ministry of IC, ICT Board	Clients of BPO and ITES sectors
	E-government	Directorate of e-government; line ministries	Directorate of e-Government	UNDESA
	Cybersecurity	Government, telcos, business and other users	Ministry of IC, CCK (KE-CIRT), security agencies	ITU-IMPACT
	Government data and websites	Government agencies and ministries	Government agencies and line ministries	ITU-IMPACT
	Consumer issues and fraud	Citizens, businesses	Ministry of IC, CCK (KE-CIRT)	ITU-IMPACT; Interpol; international security negotiations
	Criminality and terrorism	Government, citizens	Security agencies	ITU-IMPACT; international security negotiations
	Privacy and surveillance	Government, citizens	Government, security agencies	International rights agencies
	Local content	Users, media, local IT and content businesses, govt, NGOs	Government agencies, local businesses and NGOs; media	External Internet platforms (e.g. Facebook)
	Open data	Government (agencies and line ministries)	Ministry of IC, line ministries	UNDESA
	Capacity-building	Government, businesses requiring IT skills, users	Ministry of IC, education ministry, schools and universities	IFIs and donors
	Behavioural issues (including child protection)	Users, politicians	Users, Parliament	
	Freedom of expression and rights issues	Government, users, politicians, rights NGOs	Parliament, security agencies	International rights agencies
Governance arrangements	Technical discussion spaces	IT/Internet techical and professional community	EANOG, Computer Society, iHub etc; ISOC chapter (nascent)	ISOC, IETF, W3C, AfNOG *etc.*
	Role of national IGF	All	KIGF, KICTANet	East African IGF; African IGF; global IGF

As with stakeholders, it is also possible to overlay the decision-making processes identified in this table on the map of issues which appeared earlier in the report at Figure 14. The resulting overlay map, in Figure 28, gives a representation of where the most important Internet governance decisions today are being made, are likely to be made or ought to be made. How well stakeholders believe this works in practice is a theme of the next Chapter of this report.

Figure 28: The relationship between Internet governance issues and decision-making processes in Kenya



CHAPTER 3D: PERCEPTIONS OF INTERNET GOVERNANCE IN KENYA

The final part of the assessment undertaken by the research team was concerned with perceptions of Internet governance in Kenya among those who play some part in the process. This was undertaken in the course of interviews and discussions with informants during the week-long mission undertaken for the study, through participant observation by one of the authors in Internet governance activities over a period of time, and through assessment of contributions to the national IGF, the KICTANet discussion list and other sources.

The research team also used the opportunity of the study to test a perception questionnaire which could become part of the methodology for future assessments. The ISOC framework report recommends that a perception questionnaire should be distributed to participants in the national IGF meeting. This was not possible on this occasion. However, in order to test the methodology, a pilot questionnaire was distributed to selected senior personnel chosen from among policymakers, Internet business leaders, Internet professionals and observers of Internet governance in the country. The questionnaire asked respondents to rate ten aspects of Internet governance in Kenya against a five-point Likert scale, and to make any additional comments they might have on the current state of Internet governance. The pilot implementation confirmed that an online questionnaire was less likely to solicit sufficient responses to have quantitative value, and that it would probably be more productive to distribute a questionnaire to participants in the national IGF. This is an initiative which could be undertaken by the event organisers (now the national ISOC chapter) at the 2013 and subsequent meetings of the national IGF. However, the pilot implementation did generate a useful set of ratings and comments which supplemented other evidence for this chapter.

Many of the perceptions which became evident through these sources have already been registered in earlier chapters. This chapter briefly comments on some additional points concerning the Internet governance environment as a whole which add to earlier findings.

The meaning of Internet governance

The research team asked informants, in both interviews and questionnaires, what they considered to be the meaning of 'Internet governance'. Responses to this varied widely. Only participants who were very familiar with the global Internet governance environment brought together the technical and public policy dimensions in a way that would be familiar in that global environment. Some described Internet governance in largely technical terms, though more described it as being concerned with public policy issues. There was certainly no clear consensus on the concept among those interested in the Internet. No-one interviewed cited the WSIS definition of Internet governance referenced in Chapter 1 – 'the development and application by Governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures and programmes that shape the evolution and use of the Internet' – indicating that, while widely known in global Internet governance circles, this has achieved little resonance in Kenya.

The following points are noteworthy from the contributions made by informants asked how they would define Internet governance.

- Informants were more likely to focus on public policy aspects of their definitions than on technical governance. Not surprisingly, members of the technical community were more likely to see Internet governance as a technical concern.
- There was quite a strong identification of Internet governance with developmental objectives. One informant, for example, said that Internet governance is to do with 'frameworks that ensure that the Internet delivers social and economic benefits necessary in improving the livelihoods of its users.'

- Some saw Internet governance as having primarily ethical concerns – for example, regulating content, or ensuring that people use the Internet in a way that is positive and beneficial for society – 'use of the Internet for proper purposes,' as one put it (excluding, for example, copyright piracy).
- Some saw it as being concerned with sustaining what might be called the 'founding principles' of the Internet, *i.e.* its non-governmental, consensual, multistakeholder ways of working.

The value of the Internet to Kenya

There was a strong sense of agreement with the Government's perception of the Internet as a catalyst for economic growth, and a number of informants cited the *Vision 2030* document and other government statements in this regard. The Internet was seen as an important part of Kenya's desired transition 'from a developing to a developed country,' in becoming 'a knowledge economy' and achieving world-class competitiveness.

A number of different elements were seen as important within this overall developmental goal, including:

- e-business and e-commerce, including the BPO and ITES sector and entry into other innovative markets;
- e-government and Internet-enabled delivery of public services;
- research and development, exploiting Kenya's universities and entrepreneurial IT sector.

Some respondents also described the value of the Internet in terms of personal empowerment, political engagement and accountability. 'Access to knowledge' may have been implicit in much of what was suggested, but the term itself was not widely used.

Many of the comments made about opportunities for Kenya arising from the Internet reflected the same developmental orientation. Emphasis was placed by many informants on e-commerce and e-government, on the potential for Kenya to secure international BPO and ITES business, and on the benefits for society as a whole of a citizenry that could become much better informed.

The most important challenges facing Kenya

As indicated in Chapter 2, a small number of issues were cited by a large proportion of informants as being of high importance. These were:

- cybersecurity and cybercrime;
- access and infrastructure – especially poor connectivity;
- affordability (although falling, costs were generally considered high); and
- content and capacity-building.

On the technical side, the challenge that was most frequently cited was IPv6.

A number of other observations are worth recording.

- A good many informants commented adversely on the weakness of national infrastructure, which meant that the benefits of international cable connectivity were not being fully realised, especially in rural areas. Some also commented adversely on poor network performance in Nairobi, and on the vulnerability of services to inadequate redundancy in network architecture. Slow progress towards the availability of broadband was seen as a problem.
- Some informants felt that there was insufficient competition (or too much dominance) in the telecommunications market and that this would adversely affect Internet development.

- A number of informants were concerned about child protection and illegal content issues, though this was not usually at the top of their list of priorities.
- One informant felt strongly that the Internet risked diminishing Kenyan culture – an echo of past debates on the relationship between global media and developing countries that was not more widely mentioned.

Leading participants in Internet governance in Kenya

Informants were asked in interviews and questionnaires which individuals or organisations they identified as prominent or influential in Internet governance in Kenya.

In terms of organisations, most respondents identified one or more of the major governmental agencies discussed in Chapter 3C – the Ministry of Information and Communications, CCK and the ICT Board – and also KENIC. Many also identified the telecommunications businesses and/or ISPs. TESPOK and KICTANet were also frequently mentioned. As noted earlier in the report, a number of individuals were frequently named as influential, even as champions of the Internet in the country, none more so than the permanent secretary at MOIC, Bitange Ndemo.

Quite a number of technical specialists referred enthusiastically to the ISOC chapter which was in process of formation at the time of research and of which they had quite high hopes and expectations.

General observations about the Internet governance environment

Some informants felt that, in spite of the fact that Kenya has a stronger ICT policy than most African countries, too little attention is being paid to Internet issues. One reason suggested for this is lack of technical knowledge on the part of policymakers.

Some informants expressed concern about a lack of clarity in Internet governance, in particular about who could be described as being in charge of what. One, for example, referred to the fact that there was 'no central body or entity that brings people together to help them discuss Internet issues.' Another felt that there was a certain timidity about the Internet governance community – a lack of will to explore radical ways of going about things. The existence of non-decision-making bodies such as KICTANet and the Kenya IGF was not necessarily seen as sufficient to address national needs by a number of people.

Some informants felt that there is insufficient participation in ICT-related policymaking by stakeholder groups that are important in terms of overall national development – such as the universities and major businesses outside the ICT and ITES sectors. A lack of strong consumer representation was also noted. A small number of informants said that they felt quite strongly that the Internet governance community was insufficiently inclusive – that it was made up, in practice, of a relatively small number of people who have strong connections with one another. One described the IG community as 'cliquish'; another that 'commercial players and activities are ignored;' a third that current arrangements sometimes looked like 'a group of people who know each other' rather than more formal mechanisms for multistakeholder participation.

Assessments of aspects of the Internet governance environment

Questionnaire respondents were asked to rate the performance of different aspects of the Internet governance environment in Kenya against a five-point Likert scale. Although there were insufficient responses to these questions to allow a quantitative assessment, there were sufficient to indicate some significant perceptions. In particular:

- Hardly anyone rated any aspect of the Internet governance environment as either exceptionally good or exceptionally bad.

- The quality of government policymaking was rated significantly more highly by those involved in policymaking than by respondents with business backgrounds.
- Access and affordability were generally rated satisfactory or better, in spite of the adverse comments about network quality, reliability and affordability noted above. Performance on local content, however, was generally considered poor.
- Domain name management was rated more highly by both policymakers and business people than other technical aspects of governance (IPv6 and cybersecurity), reflecting the generally positive assessment of KENIC reported earlier.
- Performance on cybersecurity and IPv6 was rated less than satisfactory by most of those who responded. Few regarded either as positively good. Comments about both reflected anxiety about a lack of urgency on the part of those responsible in government and business.
- The national IGF was not known to some respondents. Among those who were familiar with it, it was usually, but not always, considered useful.

CHAPTER 4: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

1. Summary

The first Chapter of this report identified six core research questions which are addressed by the ISOC national assessments of which this study is a pilot. These were as follows:

a) What is the general level of understanding and participation in Internet governance in Kenya?
b) What are the principal issues of Internet governance, and how are these changing over time?
c) Who are the principal stakeholders in Internet governance at national level, and how do they interact with one another?
d) What are the decision-making processes and fora that influence the evolution and use of the Internet in Kenya?
e) How do these issues, stakeholders and decision-making processes interact?
f) How effective is this national Internet governance environment perceived to be by stakeholders, what challenges arise from it, and how might they be addressed by national stakeholders and ISOC?

The first part of this chapter summarises the conclusions that can be drawn from the assessment in each of these areas. The second part compares Kenya's experience with that of other developing countries in Africa. The final part of the chapter, and of the report, makes a number of recommendations to national stakeholders and to the Internet Society.

Summary and conclusions

a. Participation in Internet governance

The Internet is recognised as a significant element in Kenya's national development and is playing an increasingly important part in the lives and livelihoods of more and more Kenyan citizens. Its impact is growing rapidly thanks to the spread of mobile access, though it is still considerably higher in the capital Nairobi than in other cities, let alone in rural areas.

Participation in Internet governance, however, is something that happens in Nairobi rather than in the country as a whole. Nairobi is home to the country's decision-makers and power-brokers as well as to a high proportion of its Internet users. Its predominance in Internet governance is therefore significant but not unusual – either for Internet governance in Africa or for any kind of governance in Kenya.

There is a significant community of participants in Internet governance in Kenya, and a higher level of understanding of Internet governance issues among a wider group of stakeholders than is found in most comparable countries. Three factors seem to have been significant in achieving this.

- Firstly, Kenya has a vibrant and entrepreneurial ICT sector, with an innovative technical and professional community. In Nairobi, at least, this generates a buzz around Internet issues, and therefore awareness of Internet governance, which is not apparent in many other countries.
- Secondly, multistakeholder engagement in ICT and Internet issues has been promoted by a number of prominent individuals, by the multistakeholder coalition KICTANet, and by the Ministry of Information and Communications. As a result, Internet governance issues have been more widely debated in public policy fora as well as in the first national and regional IGF structures to be established.
- Thirdly, the Government of Kenya has taken the opportunity to host two major global Internet events in recent years – a meeting of ICANN in 2010 and the fifth global Internet Governance Forum in 2011. This

has enabled many more people to take part in Internet governance events and gain knowledge of Internet governance issues.

However, the extent of participation should not be exaggerated. Internet governance is a minority interest within the policy *and* Internet communities in Kenya. Even among technical professionals interviewed for this study, a good number were uncertain of the meaning of Internet governance, unfamiliar with key issues and terminology, unaware of government policies, and disengaged from Internet governance entities including KICTANet and the Kenya IGF. They were simply getting on with their jobs within the Internet environment. As is the case at global level, participation by mainstream civil society organisations is limited, and little has been done to survey user opinion about Internet governance issues.

b. Internet governance issues

There has been a significant change in priority issues for Internet governance in Kenya over the past three years, since the landing of the first optic fibre cable connecting the country to the international submarine network in 2009. Before then, the lack of bandwidth and high costs of connectivity resulting from dependence on satellite infrastructure were unquestionably the most significant issues in the country's Internet governance environment. Since the arrival of competing submarine cables, priorities in access and infrastructure have shifted towards ensuring that the newly-available connectivity is accessible countrywide and available at affordable prices, leading to infrastructure investment by the government and telecommunications operators and to steps by the regulator CCK to reduce end-user tariffs.

Two major developments in Internet use in Kenya in the last three years have been the rapid spread of mobile Internet and social networking. These will continue, raising demand for data capacity, putting pressure on existing infrastructure and probably leading to demand for more spectrum. Some informants also commented on problems resulting from limited competition in the telecoms and ISP markets, where one operator is highly dominant.

There has been increased impetus to ensure that the new capacity contributes effectively to economic development. The Government of Kenya has placed high importance on IT-enabled services, which are Internet-dependent, as catalysts for the high rate of economic growth which it aspires to achieve within the national development *Vision 2030*. The government's plan to build a technology city at Konza also illustrates its aspirations for Kenya to become a regional and even global IT centre. Other initiatives that exploit the Internet for developmental purposes include donor-funded programmes of the national ICT Board, the development of the National Research and Education Network KENET (which provides bandwidth to universities and research centres), and the implementation of e-government. Kenyan businesses share the objective of using the Internet to make the country a regional ICT hub and thereby leverage economic value.

Many, perhaps most, of those interviewed for this report identified cybersecurity as the most important current Internet governance issue for the country. The term was quite loosely used but included three main concerns – the integrity of government data and websites (which have suffered recent hacking attacks), prevention of fraud, and protection against criminality and terrorism (including perceived threats from the Somali group al-Shabaab). Concern about cybersecurity, in these various forms, was evident across the multistakeholder spectrum.

The most significant technical issue – raised by technically expert informants – concerned the slow pace of deployment of IPv6. This was not universally regarded as a problem – quite a number of people felt that there was still plenty of time for Kenya to adapt – but there was a sense that Kenya might be missing out on opportunities that could result from earlier adoption. There was some concern about the pace of deployment of DNSSEC and about the management of the ccTLD .ke: although this is more successful than most ccTLDs in Africa in attracting registrants, it has not yet established a dynamic brand identity in the way that has been

achieved by, for example, South Africa's .za. Cloud computing was not significantly raised by informants as an issue.

Although issues of rights and freedom of expression were raised by some informants, they did not achieve the same prominence in discussions as they have in fora like the global IGF. There was some concern that the Internet could be abused to promote political violence during forthcoming elections, but a general sense at the time of the research that the risk of violence was less than it had been in 2007/8. As in most countries, some users and government officials were concerned about issues of child protection. Capacity-building was another significant theme, in terms both of building technical capacity within the ICT and Internet sector and of building public confidence in using the Internet for diverse purposes. The limited availability of local content was also seen as a challenge which should be addressed by government and other stakeholders, although the nature of this challenge may be changing as the easy publishing of Web 2.0 formats supplements conventional websites.

c. Internet governance stakeholders

There is more multistakeholder participation in the Kenyan Internet governance environment than in many other countries, for reasons described in the introduction to this Chapter.

Government participation is prominent and features a number of different agencies. The Ministry of Information and Communications plays a prominent role, and its permanent secretary, Bitange Ndemo, is seen as something of a champion of the Internet within the country. The communications regulator CCK has a critical role in relation to the telecommunications and Internet market. Other government agencies of importance include the ICT Board and the e-Government Directorate, which are concerned with the use of the Internet within society, as are line ministries.

Private sector stakeholders can be divided into three main categories. International telecommunications companies, which are also ISPs – and particularly the dominant market player Safaricom – have powerful interests and a very powerful role on the supply side of the Internet. The supply side also includes major international Internet applications providers (such as Google and Facebook, owners of the most used websites in Kenya), other ISPs and facilities providers such as KDN, as well as local businesses such as cybercafés. Kenya has a considerable variety of businesses which are enabled by or dependent on the Internet, ranging from the BPO and ITES sector which is being strongly promoted by the government, to innovative small-scale enterprises some of which cluster around facilities like Nairobi's iHub. Some traditional sectors, such as the newspaper industry and financial services, are also strongly affected by the Internet, while most significant businesses in all sectors now make some use of it, for example in marketing and supply chain management.

However, the extent to which these businesses engage with Internet governance is very variable. Businesses on the supply side of the Internet, and their professional staff, are much more likely to be engaged than those which merely make use of the Internet. Business associations such as TESPOK and the IT & Outsourcing Society (KITOS) also play a role. Most small businesses, however, even those which are enabled by or dependent on the Internet, focus on their business priorities and do not have much interest or involvement in Internet governance. Although cybercafés are highly affected by Internet governance decisions, for example, their owners and managers do not seem to have sought involvement in them.

The engagement of Internet technical and professional specialists is also variable. Some individuals – such as Brian Longwe, Michuki Mwangi and John Walubengo – have been involved over a long period of time, participate actively in Internet discussion lists and fora, and were mentioned as influential by a number of informants. A number of others write specialist blogs on ICT issues. A wider range of specialists participates in technical associations and interest groups such as EANOG and the Computer Society of Kenya. An ISOC chapter has recently been established and has attracted interest and enthusiasm in the community. However,

many individual technical specialists do not seem strongly engaged – or indeed engaged at all – in Internet governance issues: some of those interviewed were unfamiliar with key terms, with government initiatives and with important fora in the field.

As in other countries, civil society participation tends to focus around organisations and individuals with a strong interest in the Internet and its governance. Civil society activism around ICTs was stimulated by a number of policy issues early in the last decade, including the need for and ownership structure of submarine cables, and the role and management of CCK. Several individuals, notably Alice Munyua and those mentioned in the previous paragraph, played prominent roles in the development of this civil society participation. However, engagement in Internet organisations by mainstream civil society organisations, such as faith groups, trades unions and development NGOs, is still very limited, as it is in most countries.

Lastly, and importantly, Kenya has seen the development of an influential multistakeholder ICT pressure group and discussion forum, KICTANet. This initially drew together civil society activists, Internet technical specialists and private sector interests to advocate particular ICT policy approaches. More recently, government personnel, including senior personnel such as the permanent secretary in the Ministry of Information and Communications, have participated regularly in its fora and on its discussion lists. KICTANet's influence has been considerable and it is well-known among those engaged with Internet governance, but not – to judge from interviews and discussions – as well-known in wider civil society and Internet professional communities.

d. Decision-making processes and fora

Many decisions concerning the Internet, particularly technical decisions, are global rather than national in character, but, even where technical issues are concerned, important decisions are taken at a national level. Issues concerning infrastructure and public policy issues are predominantly determined nationally. There is significant overlap in Kenya, as elsewhere, between stakeholder identities and decision-making processes and fora.

The overall direction of national policy concerning ICTs and the Internet, for example, is determined by government agencies, in particular the Ministry of Information and Communications, the regulator CCK and (to a lesser extent) the ICT Board. CCK's decision-making processes are particularly important in relation to infrastructure, access and affordability of the Internet. While they are governmental processes, they are open to varying levels of consultation and influence by other stakeholders. Business interests have also been consulted about the development of the government's *Master Plan* for the ICT sector. Past advocacy work by KICTANet and interest within the country's vibrant media have encouraged openness in policy development and decision-making.

Many of the most important decisions that influence the direction of the Internet, however, are not taken in government but by private sector companies. So far as Internet users are concerned, both individual and corporate, the most important of these are decisions taken about investment, pricing and quality of service by telecommunications operators. Because of its dominance in the telecoms and ISP markets, Safaricom is a particularly influential decision-maker in this area. Individual users are also highly impacted by the way in which platform providers such as Google and Facebook evolve their services. BPO and IT-enabled services will succeed or fail according to decisions about business models which are made within the companies concerned as well as the government policies and incentives that are put in place to help them.

Much of the technical development of the Internet in Kenya is also determined by decisions taken in businesses and other organisations. While the government can establish task forces in areas such as IPv6 and cybersecurity, for example, it is decisions by business actors and other major players (including other government departments) that will determine how rapidly IPv6 is deployed in practice or how secure an Internet environment is experienced by Kenyan users. The national ccTLD and IXP are other significant

decision-making fora in Kenya's technical Internet development, though their remit is narrowly specialised. The African Regional Internet Registry, AfriNIC, has a significant influence on technical decision-making in the country.

Issues that lie at the interface between the Internet and other public policy domains are, almost by definition, primarily determined in those other policy domains. The use of the Internet in publicly-funded education, for example, is going to be determined by the Ministry of Education, by the funding available for connectivity and equipment (including funding from IFIs and donors), by decisions which are taken by individual schools, by the availability of suitable teaching staff, and by the work of independent actors such as the Kenyan NREN KENET. Internet-specific actors such as KICTANet contribute to decisions made in these areas through advocacy and consultation, as do the media, but decisions about them are essentially taken through their traditional governmental and governance mechanisms. It remains to be seen how new constitutional arrangements, which decentralise a good deal of decision-making power, will affect these areas.

Kenya was the first country to hold a national IGF, instigated by KICTANet, and this has been a regular feature ahead of meetings of the East African regional IGF and the global IGF since 2008. It includes an online discussion phase as well as an annual public meeting. Although it has no decision-making powers, the Kenya IGF provides a space within which people from different stakeholder groups can exchange views. It supplements the ongoing discussions that take place on online lists and in personal interactions between individuals who are involved in Internet and Internet governance, and it provides an opportunity for them – and for government figures – to reach out to a slightly wider group of interested but less committed participants.

Multistakeholderism has been a core principle of Internet governance internationally, and there is significant multistakeholder participation in policy dialogue in Kenya. This is fostered by KICTANet and the Kenya IGF and supported in government. There is a reasonable level of multistakeholder engagement in decision-making, which appears to be more rooted than in many comparable countries thanks to these factors and the vibrancy of the national ICT sector. However, the fact that multistakeholderism is established in principle and that there are multistakeholder institutions like KICTANet and the national IGF does not mean that multiple stakeholders are involved in all or most decisions. Many of these take place in processes and fora that are dominated by one or other stakeholder group – by government, by technical specialists, or by telecommunications companies and CCK. The most important areas for multistakeholder participation are those in which there is a very high degree of impact across the board, such as access and cybersecurity. A coalition of diverse stakeholder interests had significant influence in promoting access to submarine cables. The next major test of multistakeholderism in Kenya will be the extent to which decision-making on cybersecurity engages participants from all stakeholder groups.

e. The overall Internet governance environment – assessment and perceptions

There is no clear consensus among informants about the meaning of Internet governance. Different people in Kenya think that it means different things, more seeing it as being concerned with public policy than with technical issues. Some informants also feel there is a lack of clarity about who is 'in charge' when it comes to the Internet. Partly that is due to the distributed nature of Internet governance, but it also points to the need for more awareness-raising and more efforts to involve a wider community in discussions, particularly as the Internet becomes more important to the lives and livelihoods of the population as a whole.

Those involved in Internet governance are generally supportive of the developmental goals set out in government policy and see considerable potential in e-commerce, e-government and other applications. The most difficult challenges that concern them lie in the quality, reliability and affordability of access; cybersecurity and lack of awareness of the problems that it poses; and the lack of local content. Unless these are addressed, there is a risk that the developmental value of the Internet will not be realised. Kenya has set

ambitious targets for economic growth, in which ICTs and the Internet are expected to play a leading part. That will require investment in physical facilities and in problem-solving, by both government and businesses on the supply side of the Internet.

Perceptions of the quality of government policymaking on the Internet are varied. There is more satisfaction with the performance of KENIC in managing domain names than there is in some other areas of Internet governance, especially IPv6 and cybersecurity. Informants would like to see more dynamism in these two areas, to ensure that risks are reduced and opportunities taken.

While the Internet governance environment in Kenya is more open to multistakeholder participation than most in Africa, there is a sense expressed by some that it could and should be more inclusive – in particular that it is not particularly attractive to some important stakeholders such as demand-side businesses and universities. Lack of awareness of government initiatives and of the Kenya IGF needs to be addressed if they are to become more effective in achieving their goals.

2. Comparisons with other countries

The ISOC framework for national assessments recommends that the national Internet governance environment in assessed countries should be compared with those elsewhere. As the Kenya assessment reported in this document is a pilot implementation of the ISOC framework, there are as yet no comparable assessments of other countries. This section therefore comments on Internet access and usage data and provides an interpretation of Kenya's Internet governance environment in comparison with those of other countries, in particular those in sub-Saharan Africa, based on the authors' wider knowledge and experience of these.

Kenya is widely recognised, along with South Africa, Ghana and Nigeria, to have one of the more dynamic ICT sectors in Africa. This perception of dynamism derives from a number of different factors – the visibility of Kenyan participation in international ICT and Internet fora; eye-catching government-led initiatives such as the TEAMS cable, NOFBI and the technology city planned at Konza; innovations like MPESA; the entrepreneurial ICT technical community that has emerged at centres like the iHub; and the rapid growth of mobile Internet.

It is difficult to find reliable and up-to-date comparative data on ICT and Internet use in sub-Saharan African countries, as data are generated differently in different countries, use different parameters (for example, different multipliers to estimate the number of overall Internet users), and are often reported late. The quality of data reported by CCK is exceptional for sub-Saharan Africa.

Published data are therefore of limited value for comparative purposes. In the ISOC framework document, the possibility is raised of developing a series of benchmarks which could be used for comparative purposes if and where adequate data are available. These could cover issues such as market competition as well as access and usage. Such indicators may become viable in due course, as a number of national assessments are made.

For the present and immediate future, however, at least in Africa, the most reliable set of benchmark data for access and usage may well be those generated by Research ICT Africa's twelve-country household survey, conducted in 2011, the first results of which have recently been published. The other African countries in the RIA survey include three of Kenya's neighbours in the East African Community (Rwanda, Tanzania and Uganda) as well as Botswana, Cameroon, Ethiopia, Ghana, Namibia, Nigeria and South Africa. RIA has not yet reported on its experience of sampling, and so it is not yet clear if adjustments need to be made to data to account for

sampling variation. However, the following preliminary findings offer some useful indicators of where Kenya stands among the dozen countries included in the survey.[28]

- Household access to computers and the Internet are higher in the Kenyan sample than in most other surveyed countries, at 12.7%. Only South Africa, Botswana and Namibia recorded higher household computer access, and only South Africa recorded higher household Internet access. Figures for other East African countries were very much lower, at around 2% or less. Like its neighbours, however, the Kenyan sample recorded much lower levels of fixed telephone access than those in southern Africa, illustrating that mobile access is exceptionally important in Kenya.

- Just over a quarter of adults in the Kenyan sample recorded using the Internet, a figure exceeded only by the samples in South Africa and Botswana. Mobile phones (78%) and cybercafes (72%) were the most significant locations for Internet use within the last twelve months for Kenyan respondents, proportionally around the average for the twelve countries concerned though the *number* of people using mobile phones for Internet access in Kenya is considerably higher.

- Three quarters of Kenyan adults in the sample owned a mobile phone, a figure exceeded only by the samples in South Africa and Botswana. Of those with a phone, only the South African sample had a higher proportion of users with phones capable of browsing the Internet, and Kenyan users were more likely than almost all others to be using their phones to browse the Internet, send emails or correspond through social networks.

- The proportion of Kenyan adults sampled who were making use of a computer was also at the top end of the range (21.2%, exceeded only by the South African sample), indicating that computer access reaches lower down the income and educational scales than in most other sample countries. Usage patterns for computers were skewed towards the Internet, where Kenyan and Rwandan users recorded the highest usage levels (about 88%), rather than office suite and other applications, though use of these was also high.

- Just over half of the Kenyan sample of Internet users reported using the Internet daily, another figure exceeded only by South African and Namibian respondents. Kenyan users were, however, more likely to be more recent users of the Internet than those in other countries sampled, again suggesting the importance of rapid growth in mobile Internet. They were among those most likely to be using email and social networks.

These preliminary data from the RIA survey provide a useful starting point for assessing Internet access and usage, but more valuable comparative data will emerge from the survey over the coming year.

The following paragraphs give a brief qualitative assessment of comparisons between Kenya and other sub-Saharan countries, based on desk research, interviews and personal observation, and the responses of informants to the project questionnaire.

1. Internet governance is more developed and more inclusive in Kenya than in most African countries. There is a strong community of Internet governance participants, including a number with high levels of expertise. Few sub-Saharan African countries can currently match this, and so Kenya has, not surprisingly, come to be seen as a leader in the field.

[28] http://www.researchictafrica.net/docs/RIA%202011%20ICT%20survey.pdf

2. It is difficult to compare access to the Internet in different African countries because of the high levels of investment that are underway and because of the differences in access between urban and rural areas in all countries. Kenya appears to have made more rapid gains in access than most countries because of the boost given to connectivity by the landing of submarine cables since 2009, higher than average levels of investment in national infrastructure by both telcos and the government (including NOFBI), and rapid adoption of mobile Internet. However, the quality of connectivity remains variable in all regions and poor in many. Broadband Internet access is limited at present.

3. The affordability of the Internet is also difficult to measure between countries. Prices have fallen sharply since the landing of submarine cables and regulatory pressure on termination rates. Flat-rate pricing for mobile data has encouraged use of mobile Internet. Overall, the Internet seems to be becoming more affordable relative to other countries, but prices are still high in relation to incomes, limiting use for the majority of the population in a way that is no longer evident in industrial countries. The recent RIA survey should provide more comparative evidence about affordability when its full findings are published.

4. Local content, in the form of country-specific websites and other resources, is still relatively limited in Kenya but appears to be more developed than in much of Africa and to be growing rapidly. The Government's Open Data Initiative has symbolic as well as practical value in this area. Kenya's vibrant ICT community and media have facilitated a lively culture of online debate, and an increasing number of local sites appear in the top 50 websites accessed – including media and some e-commerce sites. Facebook and other social media, which are very popular with mobile Internet users in Kenya, also generate local content in the form of information exchanged between individuals.

5. Government policymaking towards the Internet in Kenya is more highly rated by the Internet community that in most African countries. The Government has gone beyond the rhetoric of many of its peers by investing in infrastructure, placing IT-enabled business services at the centre of its long-term economic planning, and initiating some ambitious IT-led development initiatives. The permanent secretary at the Ministry of Information and Communications was cited by many informants as a champion of ICTs and the Internet in Kenya. The regulator CCK is also generally considered one of the better performing regulators in Africa.

6. Cybersecurity has been acknowledged as an important issue in Kenya, and steps are beginning to be taken to address its challenges and risks. This probably puts the country ahead of most of its African peers, though there remains a feeling within the Internet community that more needs to be done, more professionally and more quickly.

7. Likewise, there is probably more awareness of IPv6 in Kenya than in most African countries, because of the country's more substantial and entrepreneurial IT community. However, adoption of IPv6 has been very slow. This is comparable with experience generally in Africa, and suggests that more needs to be done to increase awareness of the need for and potential of IPv6. Some informants were concerned that Kenya is missing opportunities to use IPv6 as a way of enhancing its status as a regional ICT leader.

8. Informants generally believed that domain name management was handled better in Kenya, and that KENIC was a more effective ccTLD registry than those found in other parts of Africa. It has secured a reasonable level of registrations from local businesses and other organisations, in competition with gTLDs, and is developing a national brand – though there is a long way to go before this achieves the brand success of .za or of some ccTLDs outside Africa.

9. There is more participation in Internet governance in Kenya than in most African countries, and this seems to be more widely spread among stakeholder groups. This has been fostered by the existence of a national IGF, by the role of KICTANet, and by interest in developing multistakeholder engagement in the Ministry of Information and Communications and in Parliament. KICTANet and the Kenya and East African IGFs have been widely regarded as models for replication elsewhere (although there is, as yet, no equivalent of KICTANet elsewhere in Africa). However, it is also true that there are substantial groups that have an interest in the impact of the Internet that do not participate in these activities.

10. Most African countries do not yet have a national IGF. The Kenya IGF has provided a useful forum for discussion of Internet governance issues, both online and in physical meetings. No work has yet been done to compare participation in different national IGFs or the extent of their influence on decision-making. Informants in Kenya are divided about the value of the national IGF.

This summary suggests, in short, that Kenya is performing better than most of its African peers in Internet governance issues and participation at present, but that this should be seen as a platform to spur further improvements, in particular increasing awareness and inclusiveness.

3. Recommendations

This final subsection of the report sets out recommendations to national stakeholders and to the Internet Society resulting from the analysis above.

Recommendations to national stakeholders

There are many positive aspects to the Internet governance environment in Kenya. A significant number of people participate one way or another in Internet governance, a good number of whom have high levels of technical and professional expertise – some ranking among the most expert on the continent. The Government has taken a positive interest in Internet governance and encouraged participation by the private sector and civil society. Multistakeholder engagement has been fostered by the successes and influence of the advocacy group KICTANet and through an annual national IGF. All in all, Kenya has one of the more successful and inclusive Internet governance environments in Africa, and this should be acknowledged. There are, however, a number of ways in which the Internet governance environment could be improved or in which it needs to adapt to meet changing requirements.

While there is a higher level of participation in Internet governance in Kenya than in most comparable countries, there are still substantial gaps in participation. Discussions about Internet governance overwhelmingly take place in Nairobi: rural areas and even other urban areas are under-represented in Internet governance just as they are under-represented in Internet access and use. Few demand-side businesses or mainstream civil society organisations play much part in Internet governance, though they are increasingly affected by the Internet. Awareness of Internet governance issues is also surprisingly low among some groups which are intensely affected by the Internet, including ICT professionals and small-scale Internet entrepreneurs. The Internet governance community needs to engage these highly-impacted groups in order to understand more clearly the implications of choices in policy and practice that need to be taken.

The following recommendations stem from these conclusions and from other findings of the report, including the perceptions of informants.

1. Access and infrastructure remain fundamental issues of public policy concerning the Internet in Kenya. In spite of recent investments in infrastructure by private companies and the government, there is concern about the availability and affordability of access for the poor and in rural areas. There are a number of significant regulatory challenges in this context, including the level of competition in the market (which is

highly dominated by one telco/ISP), the regulation of termination rates and interconnection prices, and the availability of spectrum to meet rapidly growing demand for mobile data. CCK will need to keep the impact of the Internet on demand, and the impact of infrastructure on the spread of the Internet, under review.

2. Cybersecurity is generally acknowledged to be a priority for Internet governance in the country. There is a widespread feeling that national Internet resources, including government websites, are more vulnerable than they should be, and that citizens may also be at risk from fraud and organised criminal activity. Response initiatives such as KE-CIRT are insufficient in themselves to deal with this. The development of a National Cybersecurity Plan has been tendered to US companies through the USTDA. It is important that this Plan is based on widespread consultation about the public policy concerns of stakeholders, rather than merely an exercise in technical governance, and that it reflects the realities of the communications context in the country. A clearer definition of cybersecurity, as it is understood in government, would be helpful.

3. There is a need for awareness raising in some areas of technical governance, in particular IPv6 and DNSSEC. These primarily concern the technical and business communities. There is a sense that the IPv6 Task Force needs to be more energetic in promoting the advantages of IPv6, and that telcos should do more to encourage IPv6-readiness. It might be useful for the Task Force to commission a short expert report on the current state of readiness, including recommendations to government and industry.

4. The very rapid development of mobile Internet which has taken place in Kenya over the past three years was not anticipated by policymakers or even, probably, within the telecommunications sector. Relatively little research has been undertaken into the impact of mobile Internet on behaviour, for example in the ways in which small businesses operate or in the dynamics of personal relationships within and beyond the family. These are potentially important changes in the context for social and economic development. More research into them would be useful. The impact of the mobile Internet on the cybercafé market, which is still an important source of access for many people, should also be researched.

5. Not all stakeholder groups are sufficiently engaged in Internet governance, and efforts should be made by those who are currently involved to reach out to those who are not as engaged as they should be. The Government and KICTANet can both play an important part here. It is particularly important to engage users more effectively in decision-making processes, including business users from the demand side of the Internet and citizen-consumers countrywide. At present, there is a risk that Internet governance decisions will be too representative of Nairobi, where the country's ICT community is based, and under-representative of other areas. Consumer representation is also currently weak.

6. The Kenya IGF has played a worthwhile role in Internet governance in Kenya, but it is not as well-known as it should be either within or outside the Internet community. A surprising number of informants – especially from communications businesses – were not aware of it, while others had decided not to participate because they were unclear about its role or felt that it lacked influence. The vitality of an entity like the IGF depends on its ability to renew itself, engaging with new generations of Internet participants. A thorough-going review of the national IGF would be useful, focusing on ways of making it more influential, more visible, and more attractive to those who do not currently wish to participate. The transfer of the coordinating role for the national IGF to the new ISOC chapter presents an opportunity for this review.

7. The main research for this study took place prior to the annual meeting of the national IGF in 2012. Although an assessment of the national IGF was undertaken later in the process, it did not prove possible

to use the national meeting in 2012 to administer a comprehensive questionnaire of the kind suggested in the ISOC framework. In light of this, it is recommended that the national ISOC chapter should include a questionnaire concerning perceptions of the Internet and Internet governance in the 2013 and subsequent meetings of the Kenya IGF, along the lines of that set out in Annex 1. Including a time slot in the programme for completion of this questionnaire would help to ensure a high response rate.

8. KICTANet has been a very important actor in ensuring that discussions about Internet governance in Kenya involve all stakeholders. Its role is widely acknowledged by those who have been involved in Internet governance discussions over a number of years, but it was not so well known within the new generation of Internet entrepreneurs who were interviewed for the study. The changing circumstances of Internet governance and the development of other Internet discussion fora such as EANOG and the national ISOC chapter suggest that the role and potential of a multistakeholder actor like KICTANet may be different in the next decade. The different stakeholders involved should discuss how it can make the most effective contribution in the future.

Recommendations to the Internet Society

1. This pilot study has demonstrated the overall viability of the methodology outlined in the ISOC framework. It has also illustrated potential challenges in implementation, particularly the lack of data likely to be experienced in many countries and the difficulty of obtaining questionnaire responses. The methodology should be reviewed in the light of these challenges, with the aim of ensuring that comparable assessments can be made in a range of countries. In particular, the authors believe it would be valuable for comparable studies to be undertaken in the near future of four or five other African countries which are of particular economic or demographic significance and/or have significant engagement in Internet governance – for example, Egypt or Tunisia; South Africa; Nigeria, Ghana or Senegal; and one other country in East Africa (Ethiopia, Rwanda, Tanzania or Uganda).

2. Where the ISOC framework is implemented in other countries which have national IGFs, it would probably be appropriate to coincide the main research for the study with that meeting, including a perception questionnaire of national IGF participants in the research methodology. Care should be taken, however, to ensure that issues discussed at the national IGF do not overshadow other stakeholder priorities because of the timing of the research.

3. ISOC should use the findings of this study to consider priorities for its work in information and awareness, training and capacity-building in African and other developing countries. Four aspects of awareness and capacity-building requirements, in particular, arise from these findings:

   a) the need for a variety of stakeholders, including users as well as technical specialists, to understand more clearly the issues surrounding IPv6 and other technical developments;
   b) the need for Internet technical and professional personnel to develop a stronger understanding of the governance as well as the technical dimensions of the Internet and how it affects their work;
   c) the need for better-informed participation by a wider range of stakeholders in Internet governance activities; and
   d) the need to develop a clear understanding of the meaning of cybersecurity and its implications.

   A range of methods can be used by ISOC to address these issues, from specialist training for Internet technical professionals to online factsheets for civil society organisations and the general public. While not specific to Kenya, capacity-building work along these lines would be useful in a wide-range of developing country Internet governance environments.

ANNEX 1 – DRAFT QUESTIONNAIRE FOR KENYA IGF PARTICIPANTS

Dear Colleague:

We are writing to ask for your views on Internet governance and Internet public policy in Kenya to help us to develop our work on Internet governance and ensure that future IGFs meet the needs of all stakeholders.

It would be very helpful if you could spare a few moments to complete the attached questionnaire and return this to us at the end of the meeting. This should take no more than ten minutes of your time, and your input will be invaluable.

Your responses will of course be confidential, but it would be helpful to us if you could complete the personal information section at the start of the questionnaire.

Many thanks for your time. Please don't hesitate to ask if you would like any further information about the study.

Kind regards,

[THE ISOC CHAPTER AND OTHER ORGANISERS OF THE NATIONAL IGF]

SECTION 1 - PERSONAL INFORMATION

Name

Organisation

Role in Organisation

Gender

Age Group

<25 25-34 35-44 45-54 >55

SECTION 2 - THE INTERNET IN Kenya [each question to be followed by numbered response boxes (questions 1, 3, 4 and 5) and/or a box for free text comment, as required]

1. Why, in your opinion, is the Internet important for Kenya as a country? Please give up to three reasons. [Numbered response box.]

2. What does the term 'Internet governance' mean to you? [Box for free text comment.]

3. What do you think are the most important technical challenges concerned with how the Internet is working in Kenya, now and in the future? Please list them in order of importance, and use the box to say why you think them to be particularly important. [Numbered response box and box for free text comment.]

4. What do you think are the most important opportunities and challenges for Kenya's government and Kenya society arising from the Internet. Please list them in order of importance, and use the box to say why you think them to be particularly important. [Numbered response box and box for free text comment.]

5. If you think about Internet governance in Kenya, which organisations or individuals do you think are most important and/or influential? Please list them in order of importance, and use the box to make any further comments that you wish to make. [Numbered response box and box for free text comment.]

SECTION 3 - SPECIFIC ISSUES

In this section, we would like you to comment on how you think Kenya is performing in a number of different areas of the Internet and Internet governance. In each case we would like you to assess the country's performance on a five-point scale, and would welcome any additional comments that you would like to make on the particular issue concerned. [Questions should include Likert scale options and free-text box for comments – only the Likert scale is shown below.]

1. How would you assess access to the Internet in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

2. How would you assess the affordability of the Internet in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

3. How would you assess the availability of local Internet content in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

4. How would you assess the performance of policymaking in Kenya by government agencies?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

5. How would you assess broadband policy in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

6. How would you assess the attention paid to cybersecurity in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

7. How would you assess domain name management in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

8. How would you assess the attention paid to IPv6 in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

14. How easy is it for people from different stakeholder groups to participate in Internet policy and governance in Kenya?

	Very Poor	Poor	Satisfactory	Good	Very Good
Rating	○	○	○	○	○

15. What other issues of Internet governance would you like to raise or say more about? Please give us your thoughts (followed by free text box)

16. How do you assess the value of the Kenya Internet Governance Forum as a source of information?

	Not at all useful	Not useful	Satisfactory	Useful	Very useful
Rating	○	○	○	○	○

17. How do you assess the value of the Kenya Internet Governance Forum as a way of influencing government and other policymaking on the Internet?

	Not at all useful	Not useful	Satisfactory	Useful	Very useful
Rating	○	○	○	○	○

SECTION 4 - OUR INVOLVEMENT IN INTERNET GOVERNANCE [each question followed by free text response box]

18. Which Internet governance bodies, if any, are you personally involved in?

19. Do you hold any official positions in any of these? If so, what?

20. Are you a member of any mailing lists about the Internet and Internet governance? If so, which lists?

21. Have you attended any of the following: Check if your answer is Yes

☐ a. the Kenya IGF in previous years

☐ b. the East African IGF

☐ c. the global IGF meeting held in Kenya in 2011

☐ d. the meeting of ICANN held in Kenya in 2010

22. Are you a member of the Internet Society (tick either or both boxes)

☐ Globally

☐ Kenya chapter

Many thanks for your help.