BOWMANS

INTRODUCTION

From data centres to new mobile and cable connectivity, data infrastructure is capturing the attention of investors, who can only benefit from greater insight into the regulatory ramifications of entering or operating in this sphere. This is the first of three articles to be published by our telecommunications team, giving a bird's eye view of the data infrastructure sector across East Africa.

KENYA *by Angela Mukora, Rose Njeru and John Syekei*

Overview of data infrastructure

Kenya's dynamic telecommunications market has grown significantly in the past two decades. Mobile connectivity in the country is reported to have risen from 37% to 49.6% from 2014 to 2019[1], putting Kenya at the top of GSMA's[2] list of most improved countries in the region for mobile connectivity.

Apart from high consumer readiness and experience, ample infrastructure coverage is the other significant factor that has enhanced connectivity in the region. For instance, five fibre optic international submarine cables have landed in Kenya in recent years, namely SEACOM, East Africa Marine Cable System, East Africa Submarine Cable System (EASsy), Madagascar-linked Lion2 and Djibouti Africa Regional Express (DARE 1). This has dramatically reduced the cost of phone calls and internet access, making these services affordable to the greater population.[3]

There is a concerted move to increase competition in the telecommunications sector. In early 2020, the Competition Authority of Kenya and Communications Authority of Kenya (CA) initially approved the merger between Airtel Kenya and Telkom Kenya (Kenya's second and third largest telecoms companies respectively), with the new merged operator anticipated to provide greater competition in the market. The merger stalled later in 2020 due to Ethics and Anti-Corruption Commission (EACC) investigations but has recently been revived following a court order clearing the merger.[4]

The Kenyan Government has in the past few years prioritised infrastructure investment, launching several projects through its ICT capacity investment arm, the ICT Authority. It is currently rolling out the National Optic Fibre Backbone, a project initiated in 2007 to ensure connectivity in all 47 counties of Kenya.

A priority for investors has been scaling up network capacity in Kenya. In support of this, the CA issued 329 telecommunication licences in the financial year 2018/19.[5] As at June 2020, two telecommunication operators had received licences to begin 5G testing in Kenya, demonstrating the country's desire to keep up with jurisdictions such as Nigeria and South Africa. On 26 March 2021, Safaricom announced the

[1] Mobile Internet Connectivity 2020 Sub-Saharan Africa Factsheet, accessed here.

[2] GSMA is an industry organization representing the interests of mobile operators worldwide, uniting more than 750 operators with almost 400 companies in the broader mobile ecosystem. For more details please see its website https://www.gsma.com/.

[3] TeleGeography, Worldwide Submarine Cable Map, accessed here.

[4] Business Daily, Court clears Telkom, Airtel merger, 11 February 2021, accessed here.

[5] CA Annual Report for Financial Year 2018-2019, accessed here.

activation of 5G in Nairobi, Kisumu, Kisii and Kakamega with planned expansion to one hundred and fifty sites across nine towns in the next year.[6]

In Nigeria, the 5G plan is still in its development stages: the Nigerian Communications Commission launched the Draft Consultation Document for Deployment of Fifth Generation Technology in Nigeria in August 2020.[7] In South Africa, Vodacom and MTN launched their 5G networks in 2020, and mobile data-only network operator Rain activated Africa's first commercial 5G network.[8]

Fibre optic cables

Roll-out of the National Optic Fibre Backbone continues, with the aim of expediting communication across counties and making it easier and quicker for citizens to apply for national identity cards, passports and registration of birth and death certificates. The main project participants are the Government of Kenya and the Chinese Government as funding partners, the Ministry of ICT, Innovation and Youth Affairs providing oversight, the ICT Authority as the implementing agency, and Huawei and Telkom Kenya as technical and operational partners.[9]

As at March 2021, the backbone section of the project has been completed and fibre installed in all 47 counties. Metropolitan fibre civil works have also been completed in 35 of the 47 counties. The available international bandwidth for 2018/19 stood at 4707.46 Gbps and the number of broadband subscriptions has grown strongly, rising from 5 327 859 in 2015 to 22 198 610 in 2019. This indicates continuous growth in the sector with the potential for more expansion.[10]

Another major fibre project recently piloted by the ICT Authority is construction of the 630-km high-speed fibre optic cable at Nadapal, which is set to enhance connectivity in mostly rural counties such as the upper Rift Valley and Northern Kenya areas.[11]

Through other government agencies, the National Government has also entered into private-public partnerships (PPPs). For instance, in April 2016, the Kenya Power and Lighting Company (a public company that transmits, distributes and retails electricity to customers throughout Kenya), entered into a PPP with Safaricom plc. Through this partnership, Safaricom has been able to connect Kenyans to the internet by running its fibre optic cables on Kenya Power's 4 000 km of infrastructure throughout Kenya.[12]

Other major fibre optic operators in Kenya are Access Kenya, Wananchi Group (Kenya) Ltd, Kenya Data Networks, Telkom Kenya, Jamii Telecom and Airtel Kenya. While Safaricom takes a decisive market share lead over other mobile network operators in mobile data subscriptions, Wananchi Group (Kenya) and Jamii Telecom are close behind Safaricom in fixed data subscriptions.

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[6] Safaricom switches on 5G across Kenya, accessed here.

[7] The Draft Consultation Document for Deployment of Fifth Generation Technology in Nigeria, accessed here.

[8] South Africa's Broadband Market Gains 2020, accessed here.

[9] NOFBI is currently at Phase 2. More on the project can be found here.

[10] CA Annual Report for Financial Year 2018-2019, accessed here.

[11] Turkana County Government Press Release, Governor Nanok Launches Installation of Fibre Optic Cable, 23 October 2020, accessed here.

[12] Kenya Power company website, accessed here. See also: CA Proposed National Broadband Strategy (2018 – 2023), p. 57 and 129, accessed here.

Communications towers

The majority of communications towers are owned by mobile network operators such as Safaricom, Airtel, YU (now owned by Airtel) and Orange (now Telkom Kenya).[13] This could change in step with the global trend towards tower companies acquiring and managing tower infrastructure.

Tower companies now own more than two-thirds of the world's 4.3 million investible towers and rooftop sites, and demonstrate how specialised expertise can turn passive infrastructure from a depreciating asset to a potential source of long-term, recurring revenue.[14]

The tower company approach to managing telecommunication assets is gaining momentum in East Africa following recent acquisitions of tower assets in the region. In 2018, American Tower Corporation (ATC) was reported to have reached an agreement to acquire 723 telecommunications towers held by Telkom Kenya for an undisclosed sum.[15]

Satellite communications

By the end of the 2018/19 financial year, the CA had assigned frequencies for five additional satellite earth stations and five private very small aperture terminals (VSAT) stations.[16] Further, satellite bandwidth capacity has grown to 5.58 Gbps from a mere 0.27 Gbps in 2014.[17]

Sector statistics reports for 2019/20 indicate that international bandwidth capacity maintained a stable average over the year but has dropped slightly to 5.48 Gbps.[18] An increase in satellite communications has been lauded as a contributing factor to the 21.51% growth in internet subscriptions.

As at February 2021 however, only five companies were licensed to land satellite stations in Kenya, namely Globalstar Inc, Inmarsat Ltd, Iridium Satellite, Thuraya Satellite Communications Ltd and Viasat Kenya Ltd. Of these five licensees, three are foreign companies. No additional assignments of frequencies with respect to earth stations were made in the first quarter of 2020/21.[19]

Submarine cables

Three entities currently have submarine cable landing rights in Kenya, and investors usually establish submarine cables in partnership with these licensees. The DARE 1 cable, for instance, is a three-fibre pair subsea cable operated jointly by the Government of Kenya through Telkom Kenya, Djibouti Telcom and Somalia's Somtel.[20]

[13] Powering Telecoms: East Africa Market Analysis by GSMA, accessed here.
[14] ITU News Magazine, June 2017, accessed here.
[15] The East African, Telcos sell off towers in Africa to improve balance sheets, 21 May 2018, accessed here.
[16] CA Annual Report for Financial Year 2018-2019, accessed here.
[17] CA Annual Report for Financial Year 2018-2019.
[18] Sector Statistics Report (Q3 2019 – 2020), accessed here.
[19] Sector Statistics Report (Q1 2020 – 2021), accessed here.
[20] KBC, East Africa's largest submarine cable lands in Mombasa, 6 March 2020, accessed here.

The ventures are structured in such a manner that each party owns part of the fibre in the cable, with the licensed partner undertaking the operation and maintenance of the cable in the Kenyan territory. Other operators, subject to applicable laws, regulations and commercial negotiations, then purchase Indefeasible Rights of Use (IRUs).[21]

Regulation of data infrastructure

Information and communications technology (ICT) development is at the heart of Kenya's Vision 2030, which is the country's development programme for 2008 to 2030. Vision 2030 is central to the sector's regulation, which is led by the Ministry of ICT, Innovation and Youth Affairs. This Ministry formulates, administers, manages and develops policy in the ICT sector, which the CA then implements. The ICT Authority, which is also set up under the Ministry, is tasked with rationalising and streamlining the management of all government ICT functions and enforcing ICT standards within government. It also promotes ICT literacy, capacity, innovation and enterprise in Kenya.

The Sector Policy

In August 2020, the Ministry of ICT, Innovation and Youth Affairs published National ICT Policy Guidelines, 2020, known as the Sector Policy. This is intended to guide all regulation and create an enabling environment for growth of the sector by facilitating universal access to ICT infrastructure and services all over the country. To this end, it prioritises the creation of infrastructure for always-on, high-speed, wireless internet across the country.

Further, the Sector Policy enables infrastructure and frameworks that support the growth of data centres, pervasive instrumentation (the Internet of Things), machine learning and local manufacturing while fostering a secure, innovation ecosystem. The Sector Policy also encourages infrastructure sharing and co-location for efficiency of use.[22]

The Kenya Information and Communications Act

The authority to make regulations on infrastructure sharing lies with the Cabinet Secretary, in consultation with the CA. This is according to the Kenya Information and Communications Act 2 of 1998 (KICA).

To construct, own and operate infrastructure in Kenya, one must be licensed by the CA. The type of licence depends on the nature of the infrastructure and the intended activity, as follows:

- a network facilities provider licence for establishing and operating communication infrastructure using all/any forms of technology;
- a submarine cable landing rights licence for establishing submarine cable systems within Kenyan territorial waters;
- an international gateway systems and services licence for establishing and operating international gateway systems and providing related services; and
- a contractor licence for supplying, installing and maintaining the communications infrastructure.

[21] E Sutherland, Undersea cables and landing stations around Africa: Policy and regulatory issues, provided in Cooperation with: International Telecommunications Society (ITS) (2014), accessed here.

[22] Preamble, The National Information Communication and Technology Policy Guidelines, 2020 (Kenya Gazette Notice 5472, 7 August 2020).

Interconnection regulations

The Kenyan Government places emphasis on infrastructure sharing and co-location. This is reflected in the current legal framework on interconnection of fixed links and facilities.

The Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations, 2010 (**Interconnection Regulations**) govern all interconnect licensees and interconnecting licensees. In particular, they govern the form and content of interconnection agreements, access and facilities.[23]

The Interconnection Regulations define an 'interconnect licensee' as a provider of a telecommunications service who, in accordance with a licence issued by the CA, is required to provide interconnection services to other telecommunications licensees.[24] An 'interconnecting licensee' means a provider of telecommunication services who has interconnected or requested to interconnect its telecommunications system to the telecommunications system of an interconnect provider.[25]

To encourage infrastructure sharing, an interconnection licensee is required to accept all reasonable requests for access to its telecommunications system at the network termination points offered to the majority of the interconnecting operators.

All interconnection agreements have to be filed with the CA for approval.[26] In practice, the CA does not reject disputes based on interconnection agreements that have yet to be filed for approval and instead advises the parties to file for the necessary approvals.[27]

The Interconnection Regulations further provide that where parties enter into negotiations for an interconnection agreement and fail to reach consensus within six weeks[28] of the commencement of negotiations, the CA may intervene.[29] Moreover, where there is a request by a licensee to interconnect and the other party fails to do so, the CA can require the other party to interconnect on the basis of public interest.[30] If an interconnection agreement is still pending approval, the parties may agree on interim conditions and notify the CA.[31]

[23] Regulation 3, Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations, 2010.

[24] Regulation 2, Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations, 2010.

[25] Regulation 2, Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations, 2010.

[26] Regulation 6(1), Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations.

[27] Communications Authority, Dispute between Essar Telecom Kenya Limited and Air Touch Connections Limited (Interconnection Determination No.1 of 2010), para 3.5.

[28] Note that the set period for negotiating an interconnection agreement is 6 weeks unless the CA decides to extend the period

[29] Regulation 5(9), Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations.

[30] Regulation 5(11), Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations. See also: CA (then the Communications Commission of Kenya), Determination on Interconnections Rates for Fixed and Mobile Telecommunications Networks, Infrastructure Sharing and Co-Location; and Broadband Interconnection Services in Kenya Interconnection (Determination No. 2 of 2010), pg. 4.

[31] Regulation 6(6), Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations.

Interconnection agreements cannot be terminated unless there is a fundamental breach of the agreement which the offending party has failed to remedy within reasonable time. The terminating party must also provide written notice to the offending party and the CA of its intention to terminate specifying the reasons for termination.[32] The CA has taken the stance that an agreement cannot be terminated unilaterally, and that the procedure set out in the regulations must be followed.[33]

Importation Regulations

In setting up telecommunications infrastructure, operators often have to import the telecommunications equipment to be used. This must be done in accordance with the Kenya Information and Communications (Importation, Type Approval and Distribution of Communications Equipment Regulations, 2010 (**Importation Regulations**).

Under the Importation Regulations, one cannot import, supply or distribute electronic communications equipment for commercial use without a licence from the CA.[34] In addition, all communications equipment must be submitted to the CA for type approval or type acceptance.[35]
Type approval is used to check the compatibility of communications equipment with any operating communication network and the performance of such equipment to national standards. Type approval should be obtained in respect of equipment which has not previously been type-approved. The CA periodically publishes a list of type-approved and rejected equipment.[36] One may seek type-acceptance if another jurisdiction has approved the equipment.

Communications equipment is exempt from type-approval requirements under the Importation Regulations if the equipment is temporarily imported into Kenya for re-export.[37]

Licence terms and conditions

There are varying requirements, fees and terms and conditions applicable to each licence.[38] Notably, all telecommunications licensees are required to have at least 30% Kenyan shareholding according to the Sector Policy. The shareholding requirement is higher than the 20% shareholding requirement set in the previous National Information and Communications Technology Policy (January 2006).

The local equity participation requirement has been a sore point for investors in Kenya, with most opting to seek an extension from the Ministry as they strategise on how to restructure operations. It is also arguably a barrier to investment in the sector.

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[32] Regulation 16(2), Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations.

[33] Communications Authority, Dispute between Essar Telecom Kenya Limited and Air Touch Connections Limited (Interconnection Determination No.1 of 2010), para 3.9.

[34] Regulation 17(1), Kenya Information and Communications (Importation, Type Approval and Distribution of Communications Equipment) Regulations, 2010.

[35] Regulation 3(1), Kenya Information and Communications (Importation, Type Approval and Distribution of Communications Equipment) Regulations, 2010.

[36] Updated list of type-approved equipment (January 2021) can be accessed here.

[37] Regulation 19, Kenya Information and Communications (Importation, Type Approval and Distribution of Communications Equipment) Regulations, 2010.

[38] CA, Telecommunications Licensing Procedures, accessed here.

Other major licence terms that apply across the board for all telecommunications licensees include:[39]

- A requirement to notify the CA of any change in shareholding or change of control of the licensee. This is especially so in light of Sector Policy requirements on local shareholding. The CA therefore has a vested interest in ensuring that all telecommunications licensees maintain compliance in their equity ownership.
- A prohibition on cross-subsidisation and undue discrimination in provision of its services.
- The filing of quarterly compliance returns confirming their compliance with sector regulations as well as accounting requirements.

Other laws applicable to data infrastructure

The Environmental Management and Co-ordination Act (Chapter 387 of the Laws of Kenya)

Due to the impact that construction of telecommunications infrastructure may have on the environment, the appropriate environmental reports must be submitted to and approvals obtained from the National Environment Management Authority (NEMA). This is in line with the Constitution of Kenya (2010) (**Constitution**), which contextualises the importance of sustaining the environment, noting that land is a very emotive issue in Kenya.[40]

Land Regulations

Land rights are very important to the bankability of an infrastructure project in Kenya. Under the Constitution, foreigners may only acquire land in Kenya under a leasehold agreement valid for up to 99 years. In addition to this, it is key for investors to obtain rights of way, easements and other similar rights necessary for transmission and distribution to and from the proposed sites.

The Land Registration Act 3 of 2012 has consolidated the land registration regimes in the country and made it easier to deal with land. The Land Control Act (Cap. 302) is also important as it has provisions in relation to agricultural land that may pose a significant hurdle when it comes to foreign investment, and further shows the importance of effective partnerships between investors and locally incorporated companies.

Construction Regulations and Employment Regulations

The laying of data infrastructure requires engaging contractors. Under section 15 of the National Construction Authority Act 2011, contractors must be licensed by the National Construction Authority. Therefore, any party engaging contractors must ensure that the contractor is properly licensed. It is an offence to carry out the business of a contractor without this licence.

Telecommunication companies are also required to abide by employment regulations and requirements to the extent that they have any employees. These include meeting occupational safety and health requirements (OSHA), paying national health insurance and social security benefits (NHIF and NSSF) and paying a monthly industrial levy to the National Industrial Training Authority (NITA).

[39] Templates of standard NFP and SCLR licences can be accessed here and here.

[40] Mwenda A, Kibutu TN, Implications of New Constitution on Environmental Management in Kenya (July 2012), accessed here.

Challenges in the sector

Regulatory challenges

Over-regulation

The telecommunications sector in Kenya is heavily regulated both by sectoral laws and non-sectoral regulations such as land laws, labour and employment laws, company laws, etc. This heavy regulatory burden has at times served as a deterrence to investors (particularly foreigners) establishing their presence in Kenya. While it is prudent from the Government's perspective to ensure proper regulation of a sector that has great economic impact, this has to be carefully balanced with the needs of the investors. The regulations must ensure enough flexibility to enable innovation and easier market entry. A delicate balance between effective regulation and liberalisation of the sector is imperative in ensuring the health of the sector.

Local equity participation

Local equity participation requirements are a particularly sore point for sector players, sometimes acting as a deterrent to potential investors. Foreign investors are often reluctant to divest shareholding to Kenyan entities or individuals.

A less restrictive approach has been adopted in countries such as Singapore where direct and indirect local equity participation requirements were abolished and a local incorporation requirement adopted. These companies, though incorporated in Singapore, can be fully owned by foreign entities.[41]

While countries using the local equity participation approach argue it ensures investment in the local economy, increasing requirements for foreign investment has been linked to a decline in domestic economies.[42] Taking an approach that lowers barriers to trade and favours trade liberalisation would allow Kenya to benefit from foreign investment revenue while creating local job opportunities and maintaining a positive relationship with foreign investors.

Uncertainty in regulation

The overall tonal direction of the Sector Policy seems to indicate an increase in regulation in the ICT sector in the near future. For instance, the Sector Policy outlines the need for regulation of data centres, specifically providing that the Government will develop guidelines for current and future data centres to avoid inefficient public and ad hoc private investments. The Sector Policy emphasises oversight over access, licensing operators, and regulating and pricing commercial access to infrastructure built with public funds. The intention is to promote a fair use policy by which privately established infrastructure may on fair commercial terms be made available by one operator to others.[43] This is likely to result in some pushback from sector players, noting that it is not clear how the mere provision of physical facilities such as a data centre for third-party use satisfies the meaning of a telecommunication service or system under the KICA.

[41] Pinset Masons, Singapore's foreign investment regime, 26 November 2020, accessed here.

[42] IMF, Global Trade Liberalization and the Developing Countries, accessed here.

[43] Para. 6.1.2, National ICT Policy Guidelines (2020).

Another key factor will be ensuring that there is effective support to companies regarding local equity participation requirements. The current Sector Policy is unclear on whether multiple extensions may be sought to comply with the 30% shareholding requirement, and how long entities compliant with the 2006 Policy have to comply. A formal clarification from the Ministry or the CA on this issue would be invaluable in providing clarity to investors on their structuring options.

Discretionary powers of the CA

One of the known advantages of having written law is predictability in implementation. Kenyan legislation gives wide discretion to the CA in a variety of matters without any set standards or principles to guide in the exercise of this discretion. A disconnect therefore arises between practice and reasonable expectations. For instance, in the realm of interconnection agreements, the CA is granted wide discretion to intervene and compel a party to provide interconnection services on the premise of public interest. However, the law does not define what amounts to public interest and in which circumstances the regulator is permitted to compel a party to provide interconnection services.

Licence terms and conditions, as well as regulations, also grant the CA discretion on how to dispense licences. For instance, the Kenya Communication Regulations (2001) provide that where an application is made to transfer a licence, the Authority shall in considering the application have regard to the same requirements as when granting a new licence, but in the same way maintain its discretion to refuse to approve such an application. A predictable approach on how the CA exercises its discretion would contribute to greater certainty in the industry.

Reactionary laws

Many of the laws in Kenya observably react to situations instead of anticipating them. This often results in regulation that is ill-fitting to current realities and not dynamic enough for the ever-evolving ICT sector. For instance, the Interconnection Regulations apply retrospectively to interconnection agreements entered into before these regulations came into effect.[44] Existing licensees therefore had to incur costs to bring their agreements and activities into line with these laws. In addition, the Sector Policy provisions on regulation of data centres appear to be a reaction to the increase in data centres in Kenya and may therefore result in the same challenge.

Vagueness and lack of consistency in laws lead to further uncertainty

The Sector Policy presents gaps in the implementation of proposed regulation of data centres and local equity participation requirements. Without established practice to form a point of reference, many investors are unsure of the trends that will follow and are reluctant to invest in the market.

Infrastructure roll-out challenges

Fibre optic cables: There is an over-reliance on the private sector when it comes to data infrastructure. The lack of financial capital to fill in the divide between private investment and telecommunication demands poses a problem to the successful implementation of fibre optic infrastructure in the country. In

[44] Definition of Interconnection Agreement under Regulation 2 of the Kenya Information and Communications (Interconnection and Provision of Fixed Links, Access and Facilities) Regulations, 2010.

addition to this, the lack of regulation specific to fibre optics, as in developed countries, potentially facilitates unfair competition.

Satellite: The lack of enough financial investment in VSAT connectivity is a problem that investors face when rolling out satellite infrastructure. This coupled with the lack of technical know-how in the industry has slowed the growth of the satellite communication industry. A more curated approach focusing on PPPs may boost development.

Submarine cables: With the success of Angola's South Atlantic Cable System between Brazil and Angola, collaboration is lauded as the cornerstone of ICT and communications development. An increase in collaboration between the public and private sectors in different regions will significantly improve submarine cable infrastructure while increasing investment in the sector, both of which are challenges to the successful roll-out of such infrastructure.

Data centres: There is a lack of clarity on regulation and licensing of data centres. Guidance on this point from the Ministry of ICT, Innovation and Youth Affairs and the CA will be key in ensuring increased investment in data centres.

General challenges: Other factors affecting the roll-out of data infrastructure include general delays by the regulators in granting licences, approvals and authorisations, resulting in delays in the laying of communication infrastructure. This has been exacerbated by the prevailing COVID-19 health crisis which has caused frequent closures of government offices.

Government prioritisation

Owing to competing economic priorities in the country, the sector is often relegated to the background when other, more politically sensitive issues come to the fore. Funding challenges faced by the sector regulator result in compromised service delivery. Government-backed infrastructure is also impacted, resulting in an overreliance on the private sector and foreign players for investment in the ICT sector. What this ultimately means is that the price to access telecommunication services may be driven up by commercial overheads and profit objectives.

Conclusion

There is no doubt that increasing data infrastructure will ultimately result in higher connectivity in Kenya. Increased connectivity and greater mobile penetration fit squarely into the country's Vision 2030 agenda under the social and economic pillars. It will also boost the education goal under Vision 2030, aiding in the integration of ICT into teaching and learning in schools.

Investment in infrastructure creates job and business opportunities that assist in alleviating poverty nationally. Increased internet penetration provides innovative business solutions that Government could harness in addressing key economic challenges. Mobile phones and the internet have become essential around the globe. As more and more people worldwide connect to phone services, countries such as Kenya continue to experience growth as a result of improved information flow and access to banking and other essential services. This is clear from the GSMA statistics on mobile penetration, which show that

countries with better mobile access rates are typically economically stronger than countries with less connectivity.[45]

With increased mobile and internet penetration, the ICT and communication sector presents an opportunity for the adoption of new ICT trends in the market, examples being pervasive instrumentation (Internet of Things), machine learning and over-the-top (OTT) services. Furthermore, since Kenya is a growing technology hub, the market is ripe for more data centres and co-location facilities for servers.

Finally, it is important that the Government continues to prioritise infrastructure investment and encourage the formation of PPPs in the sector. Effective investment in telecommunications infrastructure is likely the key to continued inclusive growth in Kenya.

All in all, Kenya continues to prove itself a ripe market for investment in data infrastructure.

[45] Deloitte for GSMA (2011), What is the impact of mobile telephony on economic growth? accessed here.