

## 1 KEY FEATURES

Notable aspects of the geography, demographics and social/economic status, regional economic community membership and any special challenges.

## 2 CONNECTIVITY INDICATORS

General narrative description of internet uptake in the country - 10 lines plus table below:

|                                  | Year | Total  | Penetration<br>(as a % of<br>population) |
|----------------------------------|------|--------|--|
| Population                       |      |        |  |
| Mobile Subscriptions (SIM cards) |      |        |  |
| Internet Users                   |      |        |  |
| Broadband Subscriptions, mobile  |      |        |  |
| Broadband Subscriptions, fixed   |      |        |  |
| International capacity in use    |      | (Gbps) | (Kbps/capita)                            |
| AS Numbers                       |      |        |  |
| IP addresses (v4/v6)             |      |        |  |
| ccTLD Domain Names registered    |      |        |  |

Sources:

## 3 NATIONAL ICT POLICY & REGULATORY FRAMEWORKS

### 3.1 AUTHORITIES

|                                      |   |          |
|--------------------------------------|---|----------|
| <b>ICT Policy Agency</b>             | <a href="#">Ministry of Communications</a>        | Comments |
| <b>National Regulatory Authority</b> | <a href="#">National Communications Authority</a> | Comments |
| <b>Universal Service Agency</b>      | USA Name (or operated by regulator)               | Comments |
| <b>ccTLD registry</b>                | Name  | Comments |

|   |         |                         |
|---|---------|-------------------------|
| <b>ICT Statistics agency(ies)</b>       | Name(s) | ICT Statistics gathered |
| <b>Radio Spectrum Management Agency</b> | Name    | Comments                |

## 3.2 POLICIES AND REGULATIONS

| National ICT Policy and Broadband Plan  | Names and Links to documents, (date) | Comments, plans |
|---|--------------------------------------|-----------------|
| Basic Telecom Law (Legislation and regulations on market entry/licensing and competition) | Names and Links to documents, (date) | Comments, plans |
| Infrastructure sharing regulations  | Names and Links to documents, (date) | Comments, plans |
| Interconnection regulations   | Names and Links to documents, (date) | Comments, plans |
| Cybersecurity/e-commerce/privacy  | Names and Links to documents, (date) | Comments, plans |
| Intermediary liability legislation  | Names and Links to documents, (date) | Comments, plans |
| Universal Service legislation   | Names and Links to documents, (date) | Comments, plans |
| Radio spectrum regulations and assignments  | Names and Links to documents, (date) | Comments, plans |
| Policies to reduce gender imbalance and increase the role of women                        | Names and Links to documents, (date) | Comments, plans |

## 4 NETWORK INFRASTRUCTURE

### 4.1 INTERNATIONAL CONNECTIVITY

Submarine cable infrastructure, satellite services in use, capacity available, ownership, reliability, access for competitors

### 4.2 PUBLIC NETWORK OPERATORS

National fibre and microwave networks, Links to neighbours, local access (fixed and mobile broadband)

Network expansion/upgrade Plans

[Unique Solutions](#)

Association for Progressive Communications (APC) <http://access.apc.org>

[Blu Telecom](#)

[Ecoband Networks](#)

[Dimension Data - Internet Solution](#)

[Tigo/Millicom](#)

[Vodafone - Ghana Telecom / NCCB](#)

[MTN Ghana](#)

[Main Government Web Site](#)

## 4.3 GOVERNMENT NETWORKS

Government operated networks, PPPs

## 4.4 PRIVATE NETWORKS

Corporate networks

## 4.5 CIVIL SOCIETY/NGO NETWORKS

Non profit/relief/UN networks

## 4.6 INTERCONNECTION AND HOSTING

4.6.1 Data centers

4.6.2 IXPs

4.6.3 Caching and other shared services

## 4.7 CAPACITY BUILDING INFRASTRUCTURE

ICT training, research and education networks, innovation hubs, user groups and public access facilities

## 4.8 POWER SUPPLY INFRASTRUCTURE

Electricity networks, footprint, cost & reliability

## 4.9 GOVERNMENT ICT PROGRAMMES AND PROJECTS

4.9.1 E-Government

4.9.2 **Education & health**

**4.9.3 Emergency Services**

**4.9.4 Agriculture**

## 4.10 BANKING AND E-PAYMENTS

## 4.11 MEDIA

# 5. INFRASTRUCTURE READINESS POLICY CHECKLIST

[Contribute to the Infrastructure Readiness Policy Checklist >](#)

## 6. COMMENTARY

Up to one page – highlights of the issues identified in the above profile.

## 7. COUNTRY CONTACTS AND ONLINE RESOURCES

Bullet list or table of names and urls

## COMMENTS

| Policy Component   | Significance  | Policy and Regulatory Comment <sup>*2</sup><br>Status <sup>*1</sup> |
|--|---|---|
| <b>Openness of ICT Markets</b>   |   |   |
| Open technology neutral license structure, with streamlined licensing process and no legal barriers to market entry, except minority local ownership requirement.                  | Allows competition that is not restricted by limiting market access to types of technology or services  |   |
| Limited or no state ownership of retail service providers  | Government ownership can cause a conflict of interest with other private operators and with the government wishing to maximise profitability of its shareholding vs the public needing more affordable services.  |   |
| Dominance of existing operators addressed  | Operators with a large proportion of the market may need special regulation to ensure their market dominance does not disadvantage smaller market entrants. Allows for increased customer choice and therefore improved competition and downward pressure on costs and improved service quality |   |
| Wholesale international capacity available at competitive prices or regulated capacity pricing   | Countries with only one or two international fibre links can find prices charged for capacity are not competitively priced and may require price caps.  |   |
| Multiple international fibre connections   | Redundancy is vital to maintaining reliable connectivity and also to aid in competitively priced wholesale services to local operators.   |   |
| Mandatory, transparent cost-based interconnection agreements, including availability of DID numbers  | Reduces potential for market dominance, improves opportunities for using low cost VoIP services, allows for increased customer choice and therefore improved competition and downward pressure on costs and improved service quality.   |   |
| Local Internet Exchange Point(s) & Carrier Neutral Data Centre(s)  | Keeps traffic local and therefore reduces costs to operators and improves network performance as well as improving local control/management of local content services.  |   |
| Cost based, transparent, efficient radio spectrum licensing, including access to unlicensed spectrum bands, the digital dividend, and spectrum sharing/dynamic spectrum management | Improves availability of a vital resource for delivery of broadband services. Allows for the use of the latest, most efficient technologies, limits ability of incumbents to maintain franchises through technology.  |   |
| Availability of number portability is mandatory and process is efficient   | Allows for increased customer choice and therefore improved competition and downward pressure on costs and improved service quality   |   |
| Limitations on concentration of public and private media channels and content services   | Provides greater diversity in access to information and improved consumer choice  |   |
| <b>Strength of Policy and Regulatory Institutions</b>  |   |   |
| Independence from other governmental entities, broadcasters and telecom providers – strong advocacy for consumer/public interests  | Decision making is objective and is not influenced by politics or vested interests  |   |
| Sufficient and predictable funding streams   | Helps ensure independence and that regulator has human and financial capacity to go up against large private or public vested interests   |   |

|  |   |
|--|---|
| Track record of regulatory certainty with clear, transparent development of policies and regulations, with evidence-based policymaking and regulatory procedures that include public participation                       | Helps ensure the most appropriate policies and regulations are adopted and minimises investor sense of risk and improves ability of private sector to make long term investments. |
| Authority, jurisdiction, accountability to enforce regulations, including effective regulation of anti-competitive behavior  | Improves independence and effectiveness but may also need supportive competition / anti-trust authority   |
| Regular (quarterly) data collection and publication of key market indicators disaggregated according to vulnerable groups (incl gender) and including pricing, speed, adoption rates to identify gaps and opportunities. | Provides the basis for informed decision-making and evidence-based policy development to identify gaps and opportunities  |

### Enabling Strategies and Incentives

|  |   |
|--|---|
| Presence of a national utility infrastructure database/GIS containing routes and features of telecom/transport/energy grids/ water/ waste pipelines) augmented by data on location of populations and public service outlets (schools, clinics, municipal authorities)   | Improves planning process, reduces cost of network deployment and improves reliability of networks by helping to minimise accidental fibre cuts   |
| Efficient permitting process for infrastructure deployment and regulations which encourage sharing of passive infrastructure - one stop shop for access to rights of way/wayleaves, ducts, poles, masts, govt land/buildings. Includes rapid cross-border permitting, tariff caps for lease fees & submarine landing station fees, and transparent dispute resolution procedure.   | Helps to minimise network deployment time and provides major cost savings.  |
| Mandatory dig once utility works requirement - first to dig/lay must share conduit, co-ordinated infrastructure deployment (all new roads/electricity grids/pipelines/rail lines must have ducts and fibre included). OPGW to be installed on all new overhead high tension pylons. Local authorities have effective mechanisms to promote transparency and share best practices.  | Minimises disruption and creates huge savings in costs of telecom network deployment  |
| Long term soft finance/other incentives for rural infrastructure investment, such as an efficient Universal Service Fund (USF) which subsidizes infrastructure in non-market attractive areas and available to all players on a nondiscriminatory basis. The operation of the USF is based on: 1) Non-discrimination (fair collection and distribution of funds, including non-carriers)<br>2) Using transparent and consultative processes, incorporating stakeholder inputs and priorities<br>3) Setting clear target goals and monitoring of effectiveness and impact of USF programs and projects<br>4) Prioritizing one-time infrastructure and other expenditures to enable access | Improves opportunities for private sector to invest in network deployment in areas with marginal profit potential   |
| Low taxation and import tariffs on broadband goods and services  | Reduces network deployment & maintenance costs as well as minimising customer equipment acquisition and service costs   |
| Investment in e-govt applications and connectivity for government service outlets - municipalities, libraries, schools, clinics, community centres, including support for academic and research networks and those with disabilities   | Improves potential for universal access and thus improves overall demand for broadband services and therefore attractiveness of further e-govt and private applications and services investment |
| Content Distribution Networks (CDNs) present, local web services hosting and simple, fast and low-cost Domain Name registration  | Improves ability for international and local web services to gain traction  |
| Content blocking/disabling not permitted, except due to human rights violations (no web sites blocked or broadcast license applications refused due to content without public legal process)   | Underlies adherence to democratic freedom of expression and access to information values  |

|   |   |
|---|---|
| Network neutrality adherence and protection against intermediary liability legislation  | Improves ability for international and local web services to gain traction  |
| Legal framework for cybersecurity and data protection, use of e-health records  | Ensures abuses of the internet and associated risks for the public are minimised                                    |
| Presence of tech hubs, incubators, science parks and other shared workspace environments  | Supports innovation, skills development and business development  |
| Presence of open mobile and electronic payments platforms   | Basis for broad-based adoption of e-commerce  |
| Clear and transparent IPR legal framework and Open Data Strategy for government and private information   | Creates incentives for business investment and allows re-use and value addition from existing information.          |
| Integration of the development of the above in a coherent and broadbased national broadband plan, which includes a government online strategy, time-based targets and a multistakeholder guidance process | Improves co-ordination, economies of scale, accountability and cross-sectoral synergies while reducing duplication. |
| Favorable context for investment (through tax incentives, and/or no constraints on foreign ownership and employment)  | Attracts capital and expertise to build local infrastructure  |
| Number of 'Absent'  |   |

(\*<sup>1</sup>) Absent/Partial or Full

(\*<sup>2</sup>) Level of Implementation, Transparency of Process, etc