

# The Kenyan Data Market – A Baseline Study.

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POLICY BRIEF

## BACKGROUND

Several global reports (ITU Development Index<sup>1</sup>, UN eGov Index<sup>2</sup> and others) regularly place Kenya as having one of the most sophisticated and developed ICT sectors in Africa. Despite all these developments that sets Kenya on a path towards a digital economy, Kenya is yet to refine its ICT sector related performance indicators to better reflect and measure the projected digital and data markets.

Most ICT sector statistics from state agencies, including those from Communication Authority (CA Quarterly Sector Statistics), the Kenya National Bureau of Statistics (KNBS Annual Economic Survey), KIPPRA economic reports amongst others remain heavily focused on the traditional or core aspect of the ICT sector.

Whereas the traditional core ICT sector that is centered around Telecommunications, Broadcasting and Information Technology continues to play an important role in the Kenyan economy, new data-driven digital platforms and services have emerged that need to be equally tracked and measured in order to provide evidence-based policy decisions.

This baseline study aims to provide a common understanding of what exactly is the data market, what is its size, scope, key actors, risks and opportunities. It also seeks to demystify the nature, structure, pricing and role of digital platforms as a key driver of the digital economy while providing regulatory recommendations on how digital platforms could be harnessed and managed.

## POLICY RELEVANCE

The Digital economy, Digital platforms and Data markets have issues and impacts that cut across multiple jurisdictions as well as regulatory agencies. It is important that the various regulatory agencies overseeing different aspects of the digital economy have a common understanding of the interconnected impacts that their individual regulatory decisions may have on the wider digital economy sub-sector.

To contribute towards building a common understanding of these issues and terminologies, the study specifically sought to answer the following research questions:

1. The Digital Economy, Digital Platforms and Data Market: - *What are the common definitions and concepts?*
2. Digital Platforms: - *What are their structure, characteristics and classification (taxonomy)?*
3. Data Markets and Digital Platforms: - *What are the risks, opportunities and challenges?*
4. The Kenyan Data Market Ecosystem - *Who are the key actors, data companies, their data platforms and services?*
5. Measuring the Data Market: - *What are the key dimensions, indicators and how can they be measured?*
6. Policy Implications: - *How can the various regulatory agencies (CA, KRA, CBK, Data Commissioner, etc.) jointly and collaboratively manage the emerging digital economy risks, opportunities and challenges?*

<sup>1</sup> ITU, Digital Development Dashboard, <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx> accessed June 2022

<sup>2</sup> UN eGov Index, <https://www.statista.com/statistics/1140520/egdi-e-government-development-index-african-countries/> accessed June 2022

## SUMMARY OF FINDINGS

### Definitions:

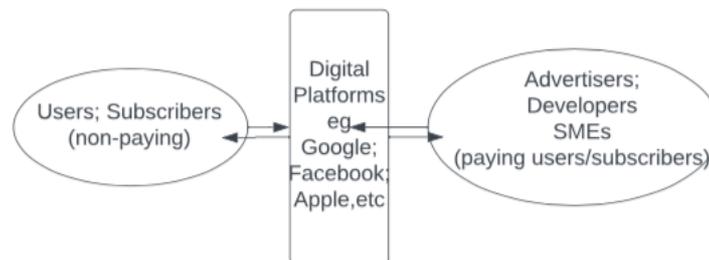
The G20 (2016) defined the Digital Economy as:

*“...a broad range of economic activities that include using digitized information and knowledge as the key factor of production, modern information networks as an important activity space, and the effective use of information and communication technology (ICT) as an important driver of productivity growth and economic structural optimization”.*

(Bukht & Heeks, 2018), UNCTAD(United Nations Conference on Trade and Development, 2019) further categorized the digital economy into three ‘SCOPE’ components, namely: The Core-scope digital economy, The Narrow-scope digital economy and the Broader-scope digital economy.

The **Core-scope** digital economy relates to the traditional ICT economy that includes Hardware manufacturing, Software and IT consulting as well as the Telecommunication sector. The **Narrow-scope** digital economy whose dominant feature is sometimes called the **Digital Platform** or App economy, it creates value by connecting two or more different sets of users or markets through electronic or digital means. The **Broader-scope** digital economy refers to digital technologies transforming traditional sectors, that is the cross-sector spill over that occurs when traditional ICTs are absorbed and used across the rest of the traditional economy such as in the digitally enabled Transport, Health, Tourism, Agriculture, Education or Manufacturing sectors.

(Srnicsek, 2017), (Evans & Schmalensee, 2016) defines Digital platforms as digital infrastructures that enable two or more independent groups to interact, very much in line with the Narrow-Scope digital platform economy taxonomy described earlier. Digital platforms position themselves as multisided intermediaries that bring together two or more different users such as sellers and buyers in form of customers, advertisers, service providers, producers, suppliers, and even physical objects as shown in the figure below:



*Fig1: Digital Platforms – multisided market, Author (2022)*

Facebook provides the best manifestation of digital platforms. It supplies a set of FREE services to users and in response receives the attention and personal information of those consumers. Facebook then charges advertisers for targeted access to these consumers. In effect, Facebook generates audiences which it subsequently sells to advertisers. This means that the traditional national-scope metrics used in ICT regulatory and competition analysis such as, user prices, revenue shares, profitability, traffic shares amongst others are much harder to apply given the global nature of the digital platforms.

The EU Data Market Study (2020) defined the **Data market** as the marketplace where digital data is exchanged as ‘products’ or ‘services’ as a result of the elaboration or processing of raw data sets. It identified two key actors within the data market as being the Data Professionals and the

Data Companies who could be playing the role of Data Suppliers (creators of the AI/data-mining tools) and/or the Data Users (companies that use AI/data-mining tools as a competitive advantage).

### The Data Market Structure

(ITU Development Sector, 2021) found that the Digital Platform or App economy is a major component of the digital economy. The App economy is an interconnected ecosystem of Mobile Application developers, sources of capital, and device makers which is dominated by the ‘digital platform owners’ such as Apple and Alphabet (Google) who own and manage the mobile-device operating systems iOS and Android, respectively. Despite the dominance of the digital platform owners, digital services to consumers are ultimately delivered to final consumers via domestic network operators as shown below.

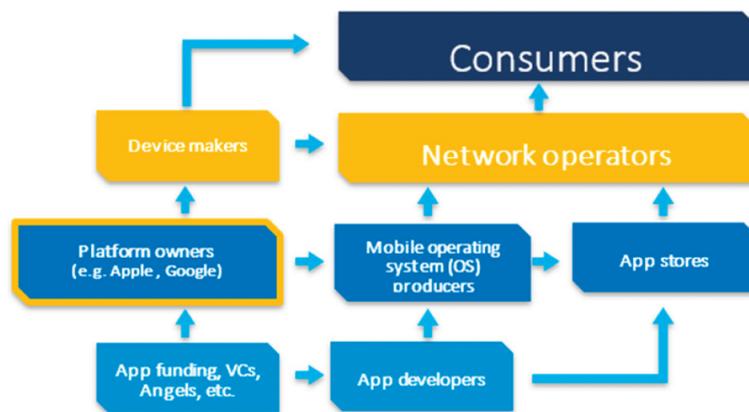


Fig 2: Digital Platform/App Economy Value Chain (ITU, 2021)

### The Opportunities and Risks & Challenges

(ITU Development Sector, 2021) provides a visualization of how digital platform services intersect with traditional telecommunication service operators.

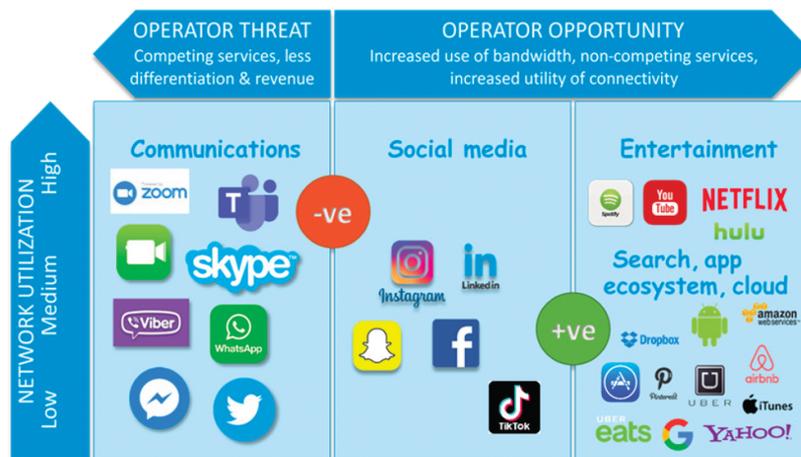


Fig 3: Digital Platform- Threats and Opportunities (ITU, 2021)

On the left panel of Figure 3 are the digital platform services that most directly compete with traditional communication services. These include Skype, Apple FaceTime, and WhatsApp. More recently, group videoconferencing applications have risen to prominence including Zoom and Microsoft Teams. In the middle panel are social media platforms, which are dominated by Facebook. Besides enabling users to publish a range of content, these platforms also typically

provide messaging services. Thus, while social media platforms may compete, in part at least, directly with traditional messaging services, they also benefit ICT operators by stimulating demand for bandwidth. On the right-hand panel are entertainment, search, cloud and other services which are not provided by ICT operators and drive increased demand for bandwidth.

According to the [United Nations Conference on Trade and Development, 2019] Digital economy report, the so-called super platforms have global implications given their strong, dominant market positions. For example, Google has some 90 per cent of the total global market for Internet searches. Facebook accounts for two thirds of the global social media market, and is the top social media platform in more than 90 per cent of the world's economies. Amazon boasts an almost 40 per cent share of the world's online retail activity, and its Amazon Web Services accounts for a similar share of the global cloud infrastructure services market.

Developing countries risk being mere providers of raw datasets while paying for the digital intelligence offered by the platform owners - and harvested from their domestic user digital footprints. Global digital platform providers also introduce regulatory <sup>3</sup>concerns that are telecoms, privacy, tax and security related since they collect and process a lot of personal citizen data in the process of providing free services to the domestic markets.

On the tax issues, the big, global technology companies are able to provide a service in one location, but recognize the income in a different jurisdiction, where the tax rate is lower, thus raising one of the central questions caused by the digitalization of the economy: who should be allowed to tax digital services?

## **The Kenyan Data Market**

In mapping out the Kenyan Data Market ecosystem, we considered the digital platform categorisation as well as the EU Data Market Study<sup>4</sup> which outlined the Data Market as being a subset of the overarching Data Landscape. Specifically, it identifies the Data Markets as constituting the following data driven companies:

- Data Analytics Companies, who provide a wide variety of software products including Analytics Platforms, Business Intelligence, Artificial Intelligence, Machine Learning, Visualization amongst others
- Data Vertical Software companies, who produce various software products that are sector specific such as Fintech, Health, Agriculture, Transport related mobile and web-based apps.
- ICT enabler Companies, the 'middle-ware' companies who produce data-driven technologies including cloud infrastructure, cluster-software, Hadoop technologies amongst others.
- Cross Infrastructure Providers who work closely with ICT enabler companies to sell and deploy middle-ware, analytics and vertical software to organisations
- Market Places where all these digital products that are data-driven are stored, curated, and exchange electronically; the digital platform.

Based on this background, we provide a selected list of what constitutes the Kenyan Data Market, Digital Platform and Services as shown Appendix II<sup>5</sup> and Appendix III<sup>6</sup> The list acknowledges that the majority of the service providers in the data market are currently global players with significant local impact in each the seven digital platform categories identified, namely: the Social media, eCommerce, Gig-economy, Cloud, Innovation, Product and Integrated Platform categories.

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<sup>3</sup> See Appendix I – Regulatory Imbalances

<sup>4</sup> EU Data Market Study <https://datalandscape.eu/european-data-market-monitoring-tool-2018> accessed June 2022

<sup>5</sup> See Appendix II- Kenyan Data Market, GENERIC VIEW - Selected Players and Actors

<sup>6</sup> See Appendix III- Kenyan Data Market, SECTORIAL VIEW - Selected Players and Actors

## Measuring the Kenyan Data Market

There are several state agencies such as the Communication Authority, quarterly Statistics (CA, 2022)<sup>7</sup>, the Kenya National Bureau of Statistics Economic Surveys (KNBS,2022)<sup>8</sup>18, the Kenya Institute of Public Policy and Analysis, Economic Report (KIPPR, 2021)<sup>9</sup> that are measuring the traditional or Core-scope digital economy and to some extent the Broader-scope Kenyan digital economy. However, there is little or no regular measurement being done to with respect to the Data Markets, or what is described as the Narrow-scope Digital economy.

Having observed the gaps in collecting digital economy data and using the EU Data Monitoring tool (2020) as a guideline, the study proposes the following as six key Indicators for comprehensively measuring the Kenyan Data Markets and the associated data economy.

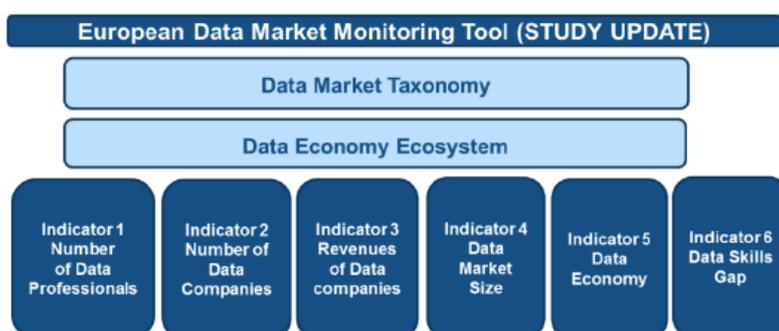


Fig 4: Data Market Monitoring Tool & Indicators (EU 2020)

The measurement framework entails monitoring and measuring six data market indicators under the three broad dimensions of:

- Workforce Skills Dimension (Indicator 1 & 6): -which measures the size of data professionals and the data skills gaps.
- Supply & Demand Dimension (Indicator 2): - which measures the number of data supplier companies as compared to the number of data user companies.
- Business & Economy Dimension (Indicator 3, 4 &5): - which measures the revenue size of data supplier companies, the value of the data market and its wider impact on the overall country GDP.

<sup>7</sup> CA Quarterly Statistics <https://www.ca.go.ke/consumers/industry-research-statistics/statistics/> accessed June 2022

<sup>8</sup> KNBS, Annual Economic Surveys, <https://www.knbs.or.ke/> accessed June 2022

<sup>9</sup> KIPPR, Annual Kenya Economic Report, <https://kippra.or.ke/download/kenya-economic-report-2021/> Accessed June 2022

### **Recommendation 1 – Activate the Council of the Future**

Having observed that there is no single agency or advisory council tasked with the responsibility of coordinating, collecting and maintaining a repository of data driven market related information as evidence in the European Union’ Expert Group on Online Platforms (2019)<sup>10</sup>. It is recommended that the Council of the Future as envisioned in the National ICT Policy (2019) be commissioned and tasked with this noble task.

The National ICT Policy states as follows:

*The Cabinet Secretary shall appoint an advisory group known as The Council for the Future. The Council shall consist of industry leaders, cutting edge entrepreneurs, academia and global thinkers as key participants dedicated to the generation and development of new thinking and strengthening of new ideas that can be brought to bear on challenges of globalization in the 21st century and shape the role and future of the ICT landscape in Kenya in the next 50 years’.*

One key task for the group would be to develop the Kenyan National AI & Data Strategy as completed by many countries including the UK (2020) , Germany (2020) and SA (2021)

### **Recommendation 2 – Adopt & Implement Joint Regulatory Approaches**

To effectively address the diverse, cross-country, cross-sector regulatory demands of the digital economy, ITU (2021)<sup>11</sup> recommends the Fifth-generation collaborative regulation. Sometimes called the G5 Regulations in short, it is part of an International Telecommunication Union (ITU) concept of continual technological development, with successive “generations” evolving from command-and-control public monopolies to collaborative regulation across institutions and stakeholders as part of a digital economy.

Based on the regulatory gaps identified, Kenya needs to improve its Collaborative Governance structure by having deeper and more formal engagements (MoUs) within and between other digital economy regulators such as the Competition Authority, Consumer Protection body, the Kenya Revenue Authority (KRA), the Central Bank of Kenya, the Office of the Data Protection Commissioner, self-regulated Internet Agencies, the Energy Regulator amongst others. The global nature of digital markets or economy will require more dialogue, consensus building and policy making at both domestic and international levels

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<sup>10</sup> EU, Expert Group on Online Platforms, <https://digital-strategy.ec.europa.eu/en/policies/eu-observatory-online-platform-economy>, accessed June 2022

<sup>11</sup> 5<sup>th</sup> Generation Regulations, ITU, <https://gen5.digital/> accessed June 2022

## THE RESEARCH

### I INTRODUCTION

The research study reviewed literature on digital platforms, data markets, digital economy from the perspective of its impact on prevailing regulatory agencies and practices.

### II METHOD

We sourced, reviewed and integrated relevant findings and perspectives from previously published and authoritative studies. International sources included studies commissioned but not limited to ITU, UNCTAD, UN while local sources included but not limited Communication Authority, KIPPRA, KNBS amongst others. We then synthesised the research findings to show evidence and to uncover common issues, challenges and recommendations as per the literature.

### III SELECTED SOURCES/REFERENCES

- Bukht, R., & Heeks, R. (2018). Defining, Conceptualising and Measuring the Digital Economy. *International Organisations Research Journal*, 13(2), 143–172. <https://doi.org/10.17323/1996-7845-2018-02-07>
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- Srnicek, N. (2017). The challenges of platform capitalism: Understanding the logic of a new business model. *Juncture*, 23(4), 254–257. <https://doi.org/10.1111/newe.12023>
- United Nations Conference on Trade and Development. (2019). Digital economy report 2019: Value creation and capture : implications for developing countries.

### IV APPENDIX

Appendix I - Regulatory Imbalances

See Appendix II- Kenyan Data Market, GENERIC VIEW - Selected Players and Actors

See Appendix III- Kenyan Data Market, SECTORIAL VIEW - Selected Players and Actors

## Appendix I - Regulatory Imbalances

<b>Regulatory Imbalances - OTT Players vs Traditional Network Operators</b>			
Serial No	Areas of Regulation	Network Operatos	OTT Players
1:	Applicable Laws	Domestic Laws	Home jurisdiction maybe; many gaps in applicable laws
2:	Taxes	Local and domestic taxes	Located in low-cost locations and tax havens
3:	Licensing	Must be granted or acquire licence from national governments	Mostly exempt
4:	Operating area	Only serve customers within the jurisdiction	Serve any user globally
5:	Network Infrastructure	Investing in new technology networks to deliver services to end-users	No investments in networks that reach end users, while telecom operators must deliver services to competitors
6:	Competition	Strict rules applying including ex ante and per se rules, mergers and acquisitions restrictions	Mostly exempt except mergers and acquisitions if OTT subject to domestic competition law
7:	Fees	Customers' charges contribute to the costs of network provisioning	Services offered without any relationship to the underlying costs - often free of charge due to two-sided market properties
8:	Quality of Service, QoS	License requirements include service-level agreements and or mandatory QoS standards	No QoS guarantee; QoS issues often blamed on network provider
9:	Interconnection	Required as part of regulatory regime; Additional costs	OTTs have no interconnection requirements for calling or messaging

## Appendix II- Kenyan Data Market, GENERIC VIEW

Kenyan Data Market Taxonomy - Selected Players and Platforms, Generic View			
Generic Categories	Global /International Players	Regional /Local Players	Data Monetization /Revenue Model
Social Network Advertisement Platforms:	FaceBook; WhatsApp; Instagram Twitter; TikTok, YouTube Google Search Engine	Local Enterprises/Businesses operating on Global Social Networks and maintaining their own local audience/customers	Users and SMEs (eg Facebook Business) sign up and host for free and Advertisers Pay-per-viewed advert
e-Commerce Platforms:	Amazon; eBay; AliBaba, etc	Wasoko.com, Masoko.com; Jumia.com; Kilimall.co.ke; MarketForce360;Jiji.co.ke, Traditional Supermarkets with their online portal, etc	Suppliers upload items for sale and Customers buy online; platform owner charges a commission
Gig-economy Platforms	Uber, AirBnB, UberEats, GlovoApp.com; Freelancer.com, UpWork.com	LittleCab; Kuhustle.com; ajiradigital.go.ke.ke.sweepouth.com,Sendy, myjobsinkenya.com, etc	Commission charges on transactions between market participants
Cloud (Data Center) Platforms:	Amazon Web Services (AWS); AppleCloud(iCloud) Microsoft Cloud (Azure); Gloogle Cloud IBM Cloud, Huawei Cloud, etc	Safaricom Cloud; LiquidCloud; JTL Cloud; KENET Cloud; Node.Africa Cloud Dimension-data.com, etc	Subscription model for SaaS, PaaS, IaaS;Freemium model (free services upto a limited data volumes and beyond which payment is triggered
Innovation Platforms:	iOS Platform (Apple AppStore); Android Platform( Google Play-Store) Harmony OS Platform (Huawei Apps); Sony Playstation Platform Store, Microsoft Xbox Platform Store	Safaricom API Portal, developer.safaricom.co.ke, Africa is Talking africastalking.com/	3rd party Developers build software and upload on the Platforms for Users to Purchase or Subscribe to;Platform owners get commission on each software deployed or sale transaction

### Appendix III- Kenyan Data Market, SECTORIAL

Kenyan Data Market Taxonomy - Selected Players and Platforms, Sectoral View			
Sector	International Players	Regional /Local Players	Data Monetization /Revenue Model
Fintech:	PayPal.com; GooglePay, ApplePay; Skrill.com;Stripe.com; Branch,CryptoCurrency Exchanges (eg Binance, Coinbase) etc	MPESA;PesaPal,Cellulant; m-kopa.com; Paylend.africa, Flutterwave.com; CredRails <a href="https://www.credrails.com/">https://www.credrails.com/</a> azafinance.com,Mobile Lenders(eg Tala.co.ke, Branch.co.ke,LocalBitcoin.com, etc	Commission and Interest charges on all financial transactions
Agriculture:	www.farm21.com; www.mfarm.co.ke; www.mkulimayoung.com; precisiondev.org; etc	TwigaFoods(twiga.com); www.mkulimayoung.com; Safaricom DigiFarm App; DigiCow.co.ke; FarmDrive (farm-drive.co.ke), etc	charge a fee for Connecting Small Scale Farmers to Markets (eliminate middle men) or to Credit/Loans or to farming data
Telecoms and Broadcast:	Skype; WhatsApp; Instagram, YouTube, Telegram, Signal; Zoom; Webex; MS-Teams; SocialMedia Live Broadcasts (FacebookLive, Instagram-Live,etc), etc	Global Platforms terminating local and International SMS, Voice and Video calls; Local Media Houses broadcasting news over Global Platforms (FB, Instagram, TikTok) amongst other platforms like viusasa.com	Onboard free subscribers and data mine their personal digital footprint or profiles for Targeted advertisement markets
Media and Entertainment:	YouTube,Facebook Live; Instagram Live, TikTok Live; Netflix; Amazon PrimeVideo; DSTV; Showmax; Hulu.com; iTunes.com, Spotify.com; EventBrite, etc	Local Artistes broadcasting Shows on Global(FB, Instagram, TikTok) and other Platforms lik viusasa.com	Subscription charges or one-time fees to attend online concerts or artiste shows