

# AFRICAN CITIES INNOVATION ANALYSIS

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# FOREWORD

Innovation is thriving in Africa, and in particular in the hotspots of East Africa and South Africa. Despite challenges across infrastructure, talent capacity, and geopolitical considerations, Africa is truly 'leapfrogging' the traditional routes to urbanisation and embracing challenge-led innovation.

The explosion of pan-African innovation hubs, localised and grassroots applications of technology and digital services, and the exponential increase of foreign investment are all converging to create several of the largest and most exciting innovation markets in the world.

For UK businesses and organisations, the opportunity for equitable partnerships and business engagement is significant, but also comes with the need for careful planning and readiness to invest time, energy and capital in a long-term business strategy for the region.

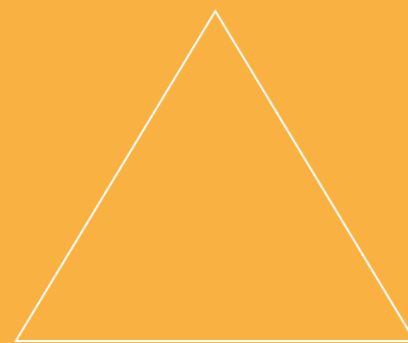
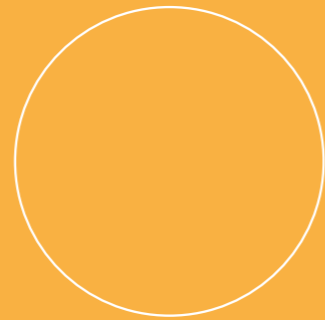
Connected Places Catapult is pleased to be working with Innovate UK in providing an overview of the innovation landscape of several African city markets and to work with UK businesses to help navigate the intricacies of a rapidly changing marketplace.

This report provides an overview of the trends across African cities in the applications and opportunities for innovation; and highlights several cities that we see as good entry points into this expansive marketplace. It also maps the key UK Government programmes that are working to connect the UK and African innovators as well as listing stakeholders both 'born' in Africa and with International Organisations operating in Africa.

We look forward to connecting UK and African entrepreneurs through collaborative projects and equitable partnerships that create impactful economic and social benefits for all partners.

Yours sincerely,

**Dr Amy Hochadel**  
Director, Global Business  
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**Additional credit and thanks:**

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In partnership with: The Business of Cities

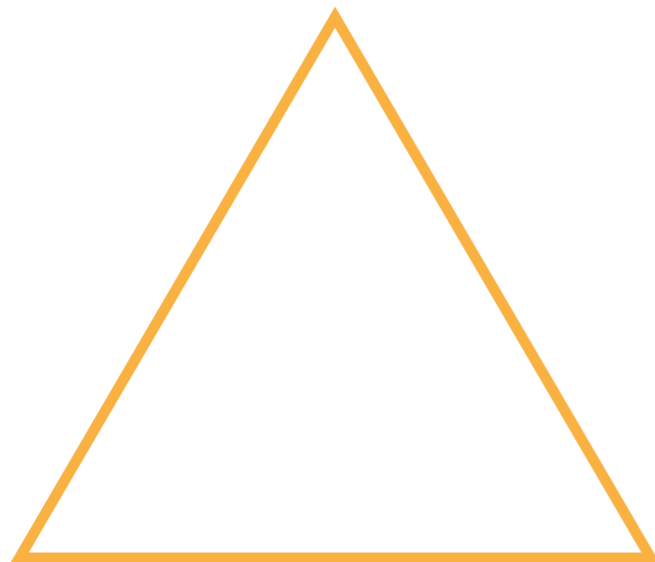
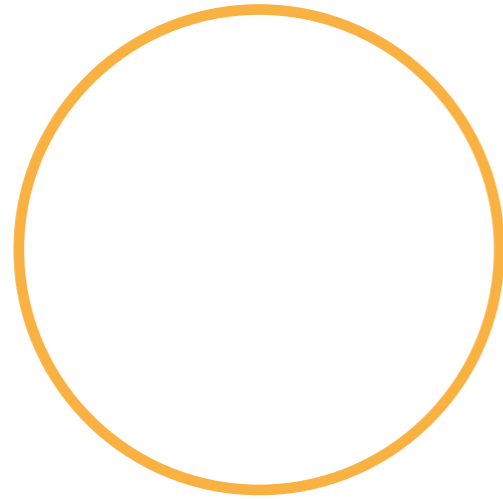
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Formerly Future Cities Catapult





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# 1 INTRODUCTION & BACKGROUND

By 2050, 2.5 billion more people will live in cities and almost 90 percent of that growth will be in either Africa or Asia. Three African cities have already grown beyond a population of 10 million and are considered megacities. More African cities, like Johannesburg and Nairobi, will soon become megacities. However, much of the urbanisation of Africa will be occurring in medium size cities. This rapid urbanisation provides great opportunities for African cities and their citizens, but also serious long-term problems if not managed well. Whilst much of the focus of current research and work is on the emergence of mega-cities, there is a growing epidemic of chronically under-resourced and ill-planned expansion of the rest of Africa's cities that would see significant impact from equitable partnerships in innovation.

One of the most obvious problems is housing; more than 60 percent of the continent's urban population live in informal settlements. In addition, African cities are also tackling the enormous challenges of population growth, economic inequality, the effects of climate change, traffic congestion and pollution.

As in many cities in the global north, city-led innovation in urban infrastructure development and service delivery is on the rise in African cities. While often cities in Europe are struggling to maintain or regenerate outdated infrastructure, many African cities are creating new districts and neighbourhoods from the ground up, while also fostering new and rapidly growing innovation ecosystems. Africa faces many urban challenges, yet in many of its cities the business and investment climate, as well as prospects for economic growth are rapidly improving.

According to the World Economic Forum (2016)<sup>1</sup>:

“Over the last 15 years, African economies have enjoyed growth above the global average. For the first time, we are seeing a trend of being technology generators rather than just adopters, and we are seeing more innovators from the west move to the continent due to an easier, and in some cases non-existent, regulatory environment, which enables greater experimentation in the market with few competitors. These include new drone technology for the delivery of goods to leapfrog the infrastructure divide.

Overall, there seems to be good news for the continent, as Africa looks to technology to catalyse new areas of growth, a good example being East Africa, with Rwanda and Kenya in particular championing the need for an enabling environment.”

To understand the role and potential impact for UK Business, Innovate UK commissioned this scoping exercise to identify if and how African cities offer an opportunity for UK innovation companies; and to garner early insights on the most promising routes to market.

By agreement with Innovate UK, this scoping exercise primarily focuses on the geopolitical areas of Kenya, Ethiopia and South Africa, providing quantitative and qualitative insights, as well as an overview of pan-African cities and city networks.

The audiences for this report are UK innovation businesses and Innovate UK. The report covers three key elements of the initial scoping exercise:

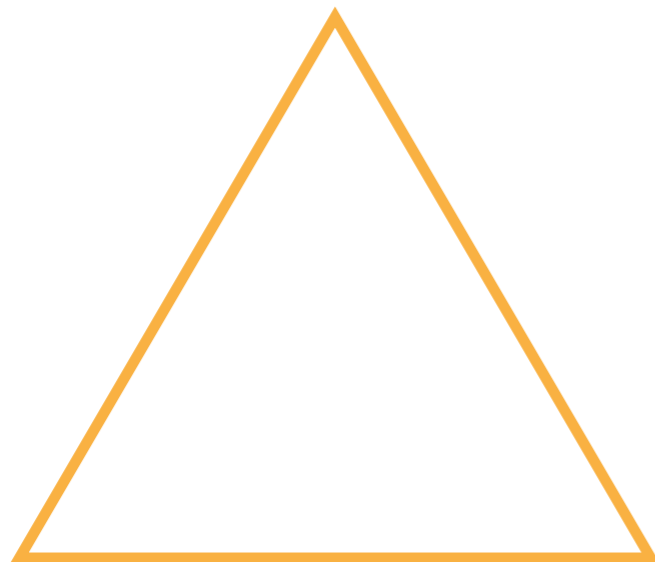
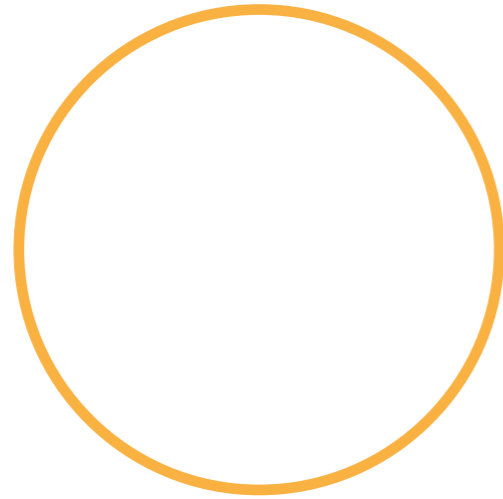
1. A city typology analysis of 14 cities across the continent of Africa;
2. Case studies from Gauteng Province, South Africa; Nairobi, Kenya; and Addis Ababa, Ethiopia; and
3. Recommendations for routes to market and engagement in African cities.

This report is not an in-depth analysis of the pan-African city innovation market. The report provides some initial data on a set of select cities across Africa. These chosen cities are meant to provide a cross sectional view of the business and innovation environment of African cities. Given the geographic breadth of the continent, it is no surprise that the results of both the quantitative analysis and the qualitative insights vary widely from country to country and city to city.

From these initial insights, the report makes recommendations to UK innovation businesses, Innovate UK and those in the Innovate family, such as Catapults, or the wider UKRI (UK Research and Innovation) network, as to what geographic areas might provide the best point of entry into the African city market. It also offers some thoughts on what shape early engagement might take in the form of partnerships and capable funders and networks across the continent.



<sup>1</sup> <https://www.weforum.org/agenda/2016/01/is-africa-leading-the-innovation-revolution/>



# 2 EXECUTIVE SUMMARY

This paper seeks to provide UK innovation businesses and Innovate UK with insights into the innovation landscape in African cities, an overview of several East African and South African cities in particular and recommendations for engagement in the African Innovation marketplace.

There are several key messages conveyed in this report which have been summarised here.

## HMG Approach

Given HMG's renewed commitment and funding in Africa, the UK's target countries have effectively been selected in Kenya, Nigeria and South Africa. HMG is now in the process of coordinating efforts and launching new programmes across these three countries. The large-scale investment in economic development and growth is expected to have broader pan-Africa benefits beyond these three markets. Nairobi and Johannesburg have currently emerged as the nexus of these activities.

## City Typology

Our city Typology analysis similarly highlighted Nairobi and the South African cities as optimal entry points - whilst also identifying additional opportunities across other African cities within the 14 cities that we analysed along the lines of Business to Business, Business to Government and Research & Innovation opportunities.

R&I - Cities to watch out for include:

- △ Nairobi
- △ Pretoria
- △ Cape Town
- △ Durban
- △ Johannesburg

B2G - Cities to watch out for include:

- △ Kigali
- △ Ekurhuleni
- △ Lagos
- △ Durban
- △ Cape Town
- △ Johannesburg

B2B - Cities to watch out for include:

- △ Nairobi
- △ Lagos
- △ Dar es Salaam
- △ Cape Town
- △ Johannesburg

## Recommendations

In Kenya, the most promising approach is to work closely across the HMG departments and their integrated offers and priorities. This would require an investment of time and travel costs to build solid relationships with the HMG Nairobi team as well as initially participating in events and meetings led by HMG and partners in Nairobi or more broadly in Kenya.

In South Africa, the existing funding opportunity through the Global Future Cities Prosperity Fund (GFCPF) programmes as well as the newly established DCMS Tech Hub, in close collaboration with the soon to be established DFID/KTN Tech Innovation Partnership provide the best entry point into the market.



# 3 HER MAJESTY'S GOVERNMENT IN EAST AFRICA & SOUTH AFRICA

## 3.1 Introduction

In 2018, UK Prime Minister Theresa May signalled a renewed commitment to the African Continent and in particular to Sub-Saharan Africa, with visits to South Africa, Kenya and Nigeria. She engaged in talks and agreements meant to shore up potential trade partners for a post-Brexit UK economy.

Committing £4 billion across several African economies, the Prime Minister indicated a 'fundamental shift' in the UK's long-term investment in the African economy, above and beyond previous commitments to shorter-term, development aid focused funding.

“Mrs May said she wanted the UK to overtake the US to become the G7's biggest investor in Africa by 2022. (BBC, 2018)<sup>2</sup>”

This section of the report endeavours to map the multiple initiatives of HMG (Her Majesty's Government) that have arisen from the new 'Africa Strategy'. Building on Ministerial level engagement, several UK-Africa initiatives have emerged or expanded. Some departments of HMG have launched their own specific initiatives or have augmented their individual staff resources in the region, whilst multiple HMG departments have launched joint initiatives.

Key areas to note are the establishment of additional teams to boost innovation in technology, an accelerator programme, UK Tech Hubs and entrepreneurship schemes.

The increased engagement comes after the Department for International Trade (DIT) announced the appointment of a dedicated HM Trade Commissioner to Africa. Emma Wade-Smith now leads a team which will provide expert in-country investment and export advice for UK and African companies.

**The partnerships with South Africa, Kenya and Nigeria include (HMG, 2018)<sup>3</sup>:**

- △ Dedicated UK science, technology and innovation teams who will build on the strong existing science relationships with South Africa and Kenya, including through the shared investments in the Newton Fund and high-end research programmes.
- △ New regional tech experts in Kenya and Nigeria to build links between the UK and Africa's cutting-edge digital sectors; support a wide range of start-ups to grow and create jobs; and help those in need of digital skills get access to training.
- △ A £32M Department for International Development (DFID) programme to accelerate the growth of promising technologies and support start-ups to grow sustainably, including through early-stage investment, connecting them with private financing, and building connections with UK peers.
- △ The roll-out of digital skills and entrepreneurship programmes including TeXchange, Global EdTech Awards, Go Global and Founders and Coders programmes in Nigeria, Kenya and South Africa, so the UK becomes the partner of choice for start-ups to expand internationally.

<sup>2</sup> <https://www.bbc.co.uk/news/uk-politics-45325701>

<sup>3</sup> <https://www.gov.uk/government/news/ambitious-new-innovation-partnerships-with-african-countries>

| Funding Department                      | Number of Research Projects |
|---|-----------------------------|
| BEIS                                    | 104                         |
| DFID                                    | 3                           |
| DHSC                                    | 10                          |
| Wellcome Trust                          | 28                          |
| <b>Total (ODA)</b>                      | <b>117</b>                  |
| <b>Total (ODA &amp; Wellcome Trust)</b> | <b>145</b>                  |

Increasing footprint of partnerships in Africa (SIN Brief 2018)

### Two HMG Technology Programmes: Tech Hub and Tech Innovation Partnership (HMG, 2018)<sup>4</sup>

It is important to note that there are two programmes currently being deployed across Sub-Saharan Africa, by different HMG departments that have very similar scopes: The Department for Digital, Culture, Media and Sport (DCMS) Tech Hubs being deployed in Johannesburg and Nairobi, and the DFID funded Innovation Partnership in collaboration with the Knowledge Transfer Network (KTN) and Innovate UK, also in Kenya and South Africa.

DCMS has established a Tech Hub in Johannesburg, with one soon to follow in Nairobi, funded by the Prosperity Fund. DCMS is also seeking to establish future hubs in Nigeria, Brazil, Malaysia and India. These Hubs will seek to leverage the local and international connections in the digital tech space to increase trade, provide a landing pad for UK companies, and to support local start-ups. The Hubs are based on the successful UK-Israeli Tech Hub model.

The DFID Innovation Partnership programme, with a £32m fund, will support entrepreneurs with early stage investment, facilitate connections across the ecosystem, build links across the UK's and Africa's innovation networks, and offer technical business skills to entrepreneurs to scale ideas. The partnership will also seek to shape and influence policy and regulatory barriers that may be preventing the growth and commercialisation of innovation solutions for African Cities. The Programme is being delivered by KTN and supported by Innovate UK.

### Innovation Partnership team (HMG, 2018)<sup>4</sup>

The Innovation Partnerships team will bring together UK teams and expertise across Government – providing a 'one stop shop' of UK excellence and tailored support.

These teams link UK government departments leading on UK research and technology for development (including DFID, Department for Business Energy and the Industrial Strategy (BEIS), and Department of Health and Social Care (DHSC)), digital technologies through DCMS and link to future UK-Africa trade and partnership opportunities through the Science and Innovation Network (SIN) and the Department for Industry and Trade (DIT).

The team will explore different areas of research and technology, and work with different sectors in African countries to help the poorest to work and improve the trading environment.

This is drawing on expertise from across Government to provide a comprehensive package of support and a place for idea exchange and partnerships.

## 3.2 HMG in Kenya

Historically, HMG and in particular, DFID, has played a major role in Kenya including in the support and development of the well know e-currency app, M-Pesa, among the most well-known digital and ICT initiatives in Africa. Helpful background on this engagement is highlighted in Ian Goldin's podcast 'Will Artificial Intelligence Kill Development?', BBC Radio 4, 6<sup>th</sup> April 2019.<sup>5</sup>

In Kenya, the HMG Nairobi team is very joined up across internal departments, living the 'One-HMG' approach, and are working hard to maximise each of their programmes and resources internally.

Active HMG programmes in Kenya include:

- ▲ **UK-Kenya oversight board on Science and Innovation** – The main nexus points of activity to follow – you can find an entry point for all other programmes in Kenya and to the Kenyan government through here.
- ▲ **DIT Kenya** – Manages the 'Investing in Kenya Guidelines' and crosses over with the Business Integrity Programme run by DFID also in Kenya, Pakistan, and Mexico.
- ▲ **DFID Kenya** – Global Challenges Research Fund (GCRF) and the Newton fund, both active and investing £60M across 10 municipalities focusing on economics planning in counties, value chain and infrastructure investment. This programme works closely with the Kenyan Council of Governors (COG) across the 47 counties (see below for more on the COG). This programme operates closely with the World Bank, also supporting all 47 counties.

▲ **Global Challenges Research Fund/UK Research and Innovation (GCRF/UKRI) & the Kenya Research Hub** – Both active in Kenya. The GCRF 'is part of the UK's official development assistance (ODA). Its aim is to support cutting-edge research and innovation that addresses the global issues affecting developing countries.' And in collaboration with UKRI, in Kenya, the focus is to:

- Promote the use of evidence in policy and design and commission research through the fund to identify opportunities - addressing challenges highlighted by country advisors 'Africa City Systems'- land use, shelter, air quality, land/housing nexus (Kenya, Somalia, Tanzania, Rwanda, Ethiopia);
- Strength research systems in the region - Science Granting Councils Initiative - aiming to strengthen the capacity of 15 science granting councils in sub-Saharan Africa by using data to make better decisions in R&D investment and helping to link research to the private sector;
- Both GCRF and Newton Fund in Kenya focus on Kenya's Big 4 sector priorities as outlined by the Kenyan Government: Manufacturing, Affordable Housing, Universal Health Coverage and Food Security.

▲ **The UK Collaborative on Development Research (UKCDR)** – A group of HMG departments and research funders working in international development globally. In Kenya, this research group is active and managed by DFID. The collaborative has mapped investments by Kenya's Big 4 sectors.

▲ **The Newton Fund** – The primary purpose of the Newton Fund, run in 17 countries, is to 'develop science and innovation partnerships that promote the economic development and welfare of collaborating countries.' In Kenya, it is run by DFID and managed by the British Council in Nairobi; the Kenya fund is known as the Newton-Utafiti Fund. 'Utafiti' is a Swahili word that means 'research'. The Kenyan fund is administered in partnership with the Kenyan Ministry of Education.

<sup>4</sup> <https://www.gov.uk/government/news/ambitious-new-innovation-partnerships-with-african-countries>

<sup>5</sup> <https://www.bbc.co.uk/programmes/m0003qyd>

△ **The Prosperity Fund** – Whilst Kenya does not have an in country-controlled Prosperity Fund allocation, they do have many of the same programmes operating there, including Prosperity Fund projects for Anti-Corruption, Digital Access, Global Risk Insurance and Skills Programmes.

- It is also important to note that the primary HMG partner for delivering The Global Future Cities Prosperity Fund Programme is UN Habitat who are based in Nairobi, which provides Nairobi and Kenya with unique insight to USD3.2million worth of activity carried out by UN Habitat for the Future Cities Programme in 2018.

Key HMG Partners in Kenya include:

△ **The Council of Governors** – a representative statutory body (voice of) the 47 Counties. It has 18 sector or issue-based committees, including the Urban Development Committee. COG works closely with development partners including DFID which is funding an urban planning programme.

△ **UN Habitat Urban Lab** – a multidiscipline facility for UN Habitat linking urban interventions to finance opportunities headquartered in Nairobi; running tangible interventions, increasingly more about finance processes; data for innovation and assessment decision making; and publishing the Urban Governance Toolkit Series.<sup>6</sup> They are the custodial agent for SDG 11 and manage the Global Future Cities Prosperity Fund programme for UK Foreign and Commonwealth Office (FCO) across 19 cities in 10 countries.



### 3.3 HMG in South Africa

In South Africa, the HMG team's work on cities and innovation is mainly focused on two key areas: South African cities involved in the Global Future Cities Prosperity Fund, and the establishment of the UK-SA Tech Hub.

#### Global Future Cities Prosperity Fund

Led by the FCO and in partnership with DFID and DIT, the fund covers 19 cities in ten countries: Brazil, Burma, Indonesia, Malaysia, Nigeria, Philippines, South Africa, Turkey, Thailand and Vietnam. Interventions will take place between 2017-2023. Currently, South Africa has three cities engaged in the fund – Durban, Cape Town and Johannesburg.

“The aim of the Global Future Cities Prosperity Fund programme is to work with a select number of cities in middle income countries. Over a three-year period to improve the way their cities are planned and managed, resulting in increased local prosperity and quality of life, including a reduction in levels of poverty and gender inequality, together with creating mutually beneficial trade opportunities.

The programme will also help create opportunities and develop sustainable economic relationships with cities in sectors where the UK has a comparative advantage, leading to a mutually beneficial increase in future cities trade. (HMG, 2017)”

City interventions focus on:

- △ Transportation – technical assistance to support cities to develop integrated multi-modal public transport systems
- △ Urban planning – technical assistance for spatial restructuring (city strategies, urban renewal, regeneration, master planning and planning frameworks)
- △ Resilience – technical assistance to develop strategies to address the impact of climate change (e.g. flooding) and ensure development is sustainable.

#### UK-South Africa Tech Hub

The UK-SA Tech Hub<sup>8</sup> is one of the first in a global network of international tech partnerships developed by the UK government's DCMS to build digital ecosystems that will facilitate sustainable economic growth and development. They follow the example of successful hubs elsewhere in the world such as the UK-Israel Hub in Tel Aviv.

The Hub has three main aims:

1. To deliver tailored interventions to cultivate digital skills responding to the needs and opportunities for inclusion in the local tech sector. This could include, for example, promoting opportunities for youth and women in the local tech sector;
2. To support tech entrepreneurship through partnerships with local digital ecosystem stakeholders including incubators, accelerators and private sector firms, SA government departments and agencies and non-profit organisations;
3. To facilitate partnerships between local tech firms (including tech start-ups) and international companies (across all sectors) in the form of commercial partnerships or joint ventures.

The Hub has only recently been established, and its Director, Shirley Gilbey is based in Johannesburg. She is a well-established presence in the South African tech landscape and very keen to work with Innovate UK and the Catapult in joining up on urban/place-based opportunities. Similar hubs are being established in Brazil, Kenya and Nigeria over the coming months.

<sup>6</sup> <https://unhabitat.org/series/urban-governance-toolkit-series/>

<sup>7</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/759296/Global\\_Future\\_Cities\\_Prosperty\\_Fund.odt](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/759296/Global_Future_Cities_Prosperty_Fund.odt)

<sup>8</sup> <https://www.gov.uk/government/news/brazil-and-south-africa-tech-hubs-launched-to-drive-international-growth>



## Other South African Programmes

- △ Newton Fund South Africa - The UK has committed £40 million to the UK-SA programme until 2021, which is match funded by South African partners.
  - The SA Newton Fund is currently reviewing and developing new programme plans and calls, but its investments in 'urban transformation' have been pretty small compared to its support for academic chairs and research collaborations in health, maritime economy and social policy.
  - On the UK side, the Newton Fund is administered by BEIS. On the South African side, the Department of Science and Technology is the lead agency. Cross cutting themes for South Africa include human capital development, innovation, regionalisation and big data.
- △ DFID's African Cities Research Programme - some links through SA institutions but SA isn't a focus country.
- △ C40 Cities Finance Facility - part of HMG's significant ODA contributions through BEIS to International Climate Fund (ICF). Climate Finance Facility (CFF) recently awarded two grants to Pretoria, one in biogas and another in non-motorised transport (planning a network of bike lanes).
- △ University College London (UCL) - sponsoring up to 6 officials from South African cities for a Global Policy Fellowship this summer, with bespoke training in urban development and governance.

# 4 AFRICAN INNOVATION NETWORKS

## 4.1 Relevance of Innovation Networks and Hubs in Africa

As the African market shifts from development focused investment towards longer-term sustainable economic growth investment, with a strong focusing on emerging technology, pan-African networks and hubs play a critical role in bridging the massive geography of the sub-Saharan African region.

To help break down the various types and focus of African Networks and Hubs, we list two main categories:

1. Born African' hubs and networks - those that have arisen from the emerging markets themselves and thus may inherently show growth in the innovation system.
2. International Organisations with African Networks - which generally focus on specific issue areas that are emerging as global trends and challenges, such as climate change, gender equality or urban development.

The exponential growth of both types of networks and hubs over the past several years, may indicate a growing focus on the African market as a viable 'place to do business' and on the growing self-reliance and entrepreneurial movement emerging from the African technology and innovation market.

AfriLabs was founded in 2011 to build a community around rapidly emerging tech hubs and innovation spaces that serve as meeting points and communities for developers, entrepreneurs, and investors across Africa. With 147 registered hubs, they act as 'the voice' of the tech hubs in Africa.

The Association of Start-up and SME Enablers of Kenya (ASSEK) brings together and represents the interests of organisations supporting the development and growth of start-ups and SMEs for maximum impact of such activities. In fostering the start-up and SME enablers ecosystem in Kenya, ASSEK plays a key role. Specifically, the Association represents all the actors of the Kenyan start-up and SME enablers Ecosystem and actively promotes the networking among its members to drive entrepreneurial growth.

WhiteBox is an initiative of the Government of Kenya through the Ministry of Information, Communications and Technology and the ICT Authority, geared towards catalysing the successful growth of local ventures to global, world-class status. The main objective of this initiative is to create a channel for anyone who wants to sell/suggest a product/idea to Government, priority will be given to products that focus on the Big 4 Agenda and address Government priorities and challenges.

The following two sections, 4.2 and 4.3, provide a listing of some of the more relevant and active networks and hubs, both 'Born African' and global organisations.

## 4.2 Africa 'Born' Networks

| Name of network  | Description  | Mission/objectives  | Member cities   |
|--|--|---|---|
| South African Cities Network<br><a href="http://www.sacities.net">www.sacities.net</a>                                   | Network of South African cities and partners that encourages the exchange of information, experiences, and best practices on urban development   | <ul style="list-style-type: none"> <li>△ Promote good governance and management in South African cities</li> <li>△ Analyse strategic challenges facing South African cities</li> <li>△ Collect, collate, analyse, assess, disseminate and apply the experience of large city government in a South African context</li> <li>△ Encourage shared learning partnerships among spheres of government in order to enhance good governance of South African cities</li> </ul> | <ul style="list-style-type: none"> <li>△ Johannesburg</li> <li>△ Pretoria/Tshwane</li> <li>△ Ekurhuleni</li> <li>△ Ethekewini (Durban)</li> <li>△ Buffalo City</li> <li>△ Mangaung</li> <li>△ Msunduzi</li> <li>△ Nelson Mandela Bay</li> </ul> |
| Young Entrepreneurs Network<br><a href="http://yenafrica.com">yenafrica.com</a>  | Networking platform that connects young innovative entrepreneurs to impact in Africa. We connect young aspiring and budding entrepreneurs to the knowledge, resources and social capital they need to succeed  | <ul style="list-style-type: none"> <li>△ Aims to be Africa's most successful community of transformational entrepreneurs</li> <li>△ Connects young entrepreneurs to knowledge, resources and networking capabilities for business growth and sustainable economic development</li> </ul>  | Pan Africa with a Nairobi HQ and strong focus   |
| Pan-African Citizens Network<br><a href="http://ccpau.org">ccpau.org</a>   | Independent organization, established in 2007, that connects African civil society organisations and citizens with regional and continental policies and programmes  | <ul style="list-style-type: none"> <li>△ Aims to put people at its centre and not governments, and ensure that decision-making is driven by, and accountable and accessible to African citizens</li> <li>△ Thematic areas include: Regional Integration; Peace and Security; Gender Equality and Women's Rights; Economic Justice; Democracy, Governance and Human Rights</li> </ul>  | Not a city-centric network  |
| African Social Entrepreneurs' Network (ASEN)<br><a href="http://www.givengain.com/c/asen/">www.givengain.com/c/asen/</a> | Includes 3,800 social entrepreneurs and enterprises in Africa. ASEN seeks to provide its members with the networks, opportunities and information they require. ASEN also seeks to help cultivate a vibrant social entrepreneurship sector across the continent.   | <ul style="list-style-type: none"> <li>△ Seeks to help cultivate a vibrant social entrepreneurship sector across the continent.</li> <li>△ Celebrates the work of social entrepreneurs (including social enterprises and social innovations) in order to help grow the sector across the African continent</li> </ul>   | Not a city-centric network  |
| Africities<br><a href="http://www.africities.org">www.africities.org</a>   | <p>Africities is the United Cities and Local Governments of Africa's flagship pan-African event that is held every three years in one of the five regions of Africa.</p> <p>We mobilize communities and local authorities in African countries, as well as financial institutions, civil society groups and development partners at continental and international level.</p> | <p>The Africities Summit pursues two major objectives:</p> <ul style="list-style-type: none"> <li>△ Defining appropriate shared strategies in order to improve the living conditions of people at the local level</li> <li>△ Contribute to the integration, peace and unity of Africa starting from the grassroots</li> </ul>   |   |
| Afri Labs<br><a href="http://www.afrilabs.com">www.afrilabs.com</a>  | AfriLabs was founded in 2011 to build a community around rapidly emerging tech hubs—innovation spaces that serve as meeting points and communities for developers, entrepreneurs, and investors.   | AfriLabs is a pan-African network organisation of over 80 Innovation centres, across 27 African countries. Each hub serves as a meeting point for entrepreneurs, technologists, investors, tech companies and web/mobile engineers in its community.  | Not a city-centric network  |

| Name of network   | Description  | Mission/objectives  | Member cities   |
|---|--|---|---|
| African Centre for Cities<br><a href="http://www.africancentreforcities.net">www.africancentreforcities.net</a> | <p>We believe that supporting the development of the African technology and innovation ecosystem enables Africa to participate in the global knowledge and innovation market place thereby stimulating economic growth.</p> <p>The African Centre for Cities (ACC) is an interdisciplinary research and teaching programme focused on quality scholarship regarding the dynamics of unsustainable urbanisation processes in Africa, with an eye on identifying systemic responses.</p> | <p>The specific strategic goals of the ACC are to:</p> <ul style="list-style-type: none"> <li>△ Produce credible new knowledge on the drivers of urban crisis in mainly African cities with an eye on systemic solutions.</li> <li>△ Provide tailored capacity development products/services based on new knowledge about the unique dynamics of urban development in Africa and the global South.</li> <li>△ Strengthen durable knowledge institutions and networks in Africa to undertake urban research and training (ACC being one).</li> <li>△ Promote and disseminate quality publications by African scholars on urban topics in general, but rooted in our programmes.</li> <li>△ Undertake targeted advocacy with influential development agencies that shape the urban development agenda in Africa and the global South.</li> </ul>  | Not a city-centric network  |
| ARUA<br><a href="http://arua.org.za">arua.org.za</a>  | African Universities Research Alliance   | <p>The African Research Universities Alliance (ARUA) was inaugurated in Dakar in March 2015, bringing together fifteen (15) of the region's leading universities. It is a network of universities from different countries and different historical backgrounds, but with a common vision. The network is generally about expanding and enhancing significantly the quality of research done in Africa by African researchers. This new network, from inception, was intended to be different from any other regional university networks. The difference was to come largely from the approach to be employed, namely bringing together a number of peer African institutions that were willing to work together by pooling their own limited resources, with a view to generating a critical mass that could more effectively support their limited, but growing numbers of researchers. Underlying this was the conviction that they could thereby leverage this effectively for additional resources from outside.</p> <p>NOTE: ARUA has a BEIS/UKRI funded partnership with the Russell Group universities but is 'African Born'</p> | <p>Member Universities:</p> <ul style="list-style-type: none"> <li>△ Ethiopia - Addis Ababa University</li> <li>△ Ghana - University of Ghana</li> <li>△ Kenya - University of Nairobi</li> <li>△ Nigeria - University of Lagos<br/>University of Ibadan<br/>Obafemi Awolowo University Ile-Ife</li> <li>△ Rwanda - University of Rwanda</li> <li>△ Senegal - University Cheikh Anta Diop</li> <li>△ South Africa - University of Cape Town<br/>University of Kwa-Zulu Natal<br/>University of Pretoria<br/>Rhodes University<br/>University of Stellenbosch<br/>University of the Witwatersrand</li> <li>△ Tanzania - University of Dar es Salaam</li> <li>△ Uganda - Makerere University</li> </ul> |

## 4.3 Global Networks operating in Africa

| Name of network  | Description   | Mission/objectives   | Member cities  |
|--|---|--|--|
| EIU-Siemens African Green Cities Index<br><a href="http://www.siemens.com/entry/cc/features/greencityindex_international/all/en/pdf/report_africa_en.pdf">www.siemens.com/entry/cc/features/greencityindex_international/all/en/pdf/report_africa_en.pdf</a> | Research project conducted by the EIU, sponsored by Siemens, which evaluated 120 cities across the world (this is the section that focuses on African cities) | <ul style="list-style-type: none"> <li>△ Focuses on the critical issue of urban environmental sustainability by creating a unique tool that helps cities benchmark their performance and share best practices</li> <li>△ Contains overall lessons for the region as well as detailed city profiles describing individual performances and best practices, such that cities might learn from one another as they debate policies and strategies to minimize their environmental footprint</li> </ul>  | <ul style="list-style-type: none"> <li>△ Accra</li> <li>△ Addis Ababa</li> <li>△ Cape Town</li> <li>△ Dar es Salaam</li> <li>△ Durban</li> <li>△ Johannesburg</li> <li>△ Lagos</li> <li>△ Nairobi</li> <li>△ Pretoria</li> <li>△ Cairo</li> <li>△ Alexandria</li> <li>△ Luanda</li> <li>△ Maputo</li> <li>△ Tunis</li> <li>△ Casablanca</li> </ul> |
| ICLEI Africa<br><a href="http://africa.iclei.org">africa.iclei.org</a>   | Regional secretariat that manages ICLEI's presence in Africa from its Cape Town base  | <ul style="list-style-type: none"> <li>△ Contributes to, and taps into, ICLEI's international network of local government leaders and professional staff who share tools, strategies and good practices for promoting the overall goal of sustainable development through the 17 United Nations Sustainable Development Goals</li> <li>△ Focuses on Africa-relevant workstreams such as: energy; resilience and climate change; water and sanitation; nature-based solutions and food security; sustainable infrastructure and integrated urban planning</li> <li>△ Connects political leaders with technical leaders and sustainability experts in effective partnerships</li> <li>△ Advocates sustainability and local solutions</li> <li>△ Being a resource centre or solution gateway for knowledge management and easily accessible information.</li> </ul> | 110 African member cities - full list at <a href="http://africa.iclei.org/members/african-members.html">http://africa.iclei.org/members/african-members.html</a>   |
| 100 Resilient Cities<br><a href="http://www.100resilientcities.org">www.100resilientcities.org</a>   | Global network set up by the Rockefeller Foundation in 2013. Programmes to be ending soon.  | <ul style="list-style-type: none"> <li>△ Provides financial and logistical guidance for establishing an innovative new position in city government, a CRO, who will lead the city's resilience efforts</li> <li>△ Provides expert support for development of a robust Resilience Strategy</li> <li>△ Provides access to solutions, service providers, and partners from the private, public and NGO sectors who can help them develop and implement their Resilience Strategies</li> <li>△ Provides membership of a global network of member cities who can learn from and help each other.</li> </ul>   | <ul style="list-style-type: none"> <li>△ Addis Ababa</li> <li>△ Cape Town</li> <li>△ Dakar</li> <li>△ Durban</li> <li>△ Kigali</li> </ul>  |

| Name of network  | Description  | Mission/objectives  | Member cities   |
|--|--|---|---|
| World Bank African Gender Innovation Lab<br><a href="http://www.worldbank.org/en/programs/africa-gender-innovation-lab">www.worldbank.org/en/programs/africa-gender-innovation-lab</a> | The World Bank's Africa Region Gender Innovation Lab (GIL) conducts impact evaluations, which assess the outcome of development interventions in Sub-Saharan Africa, to generate evidence on how to close the gender gap in earnings, productivity, assets, and agency. With the results of impact evaluations, the GIL supports the design of innovative, scalable interventions to address gender inequality across Africa. The goal is to enable project teams and policymakers to advocate for better gender integration using evidence. | The Gender Innovation Lab conducts impact evaluations in four key areas including agriculture, private sector development, land & assets and youth employment, as well as a handful of impact evaluations that explore new areas of research or provide specific support to an ongoing project. The lab is currently working on more than 50 impact evaluations across Sub-Saharan Africa.  |   |
| UN-Habitat Regional Office for Africa<br><a href="http://unhabitat.org/roaf">unhabitat.org/roaf</a>  | UN-Habitat Regional Office in Africa, located in Nairobi, Kenya, is working with African governments to take early action to position themselves for predominately urban populations. The portfolio of ongoing projects in Africa is very diverse in terms of geographic coverage and development partners.  | <ul style="list-style-type: none"> <li>△ Works with African governments to take early action to position themselves for predominately urban populations</li> <li>△ Thematic areas include: compact cities; institutional capacity; national urban policy; South-South cooperation</li> </ul>  | Country-centric rather than city-centric network<br><ul style="list-style-type: none"> <li>△ South Africa</li> <li>△ Tanzania</li> <li>△ Ethiopia</li> <li>△ Ghana</li> <li>△ Kenya</li> <li>△ Nigeria</li> </ul>   |
| UN-Habitat City Prosperity Initiative<br><a href="http://cpi.unhabitat.org">cpi.unhabitat.org</a>  | Global initiative applied in over 400 cities across the world  | Aims to promote innovative approaches to urban governance and management to assist metropolitan leaders in guiding their cities towards economically, socially, politically and environmentally prosperous urban futures.   | Not publicly available at the moment but it appears to involve several African cities, including Nairobi  |
| Strong Cities Network<br><a href="http://strongcitiesnetwork.org">strongcitiesnetwork.org</a>  | Global network, comprising 120 cities, with regional foci on East and West Africa; and Middle East and North Africa  | <ul style="list-style-type: none"> <li>△ First ever global network of mayors, municipal-level policy makers and practitioners united in building social cohesion and community resilience to counter violent extremism in all its forms.</li> <li>△ Committed to addressing violent extremism in all its forms</li> </ul>   | <ul style="list-style-type: none"> <li>△ Kaduna State, Nigeria</li> <li>△ Kano State, Nigeria</li> <li>△ Diffa, Niger</li> <li>△ Dakar, Senegal</li> <li>△ Tunis, Tunisia</li> <li>△ Zanzibar City, Tanzania</li> <li>△ Yaoundé II, Cameroon</li> <li>△ Mokolo, Cameroon</li> <li>△ Mombasa, Kenya</li> <li>△ Méri (Diamare), Cameroon</li> </ul> |
| Africa Innovation Network<br><a href="http://africaninnovationnetwork.com">africaninnovationnetwork.com</a>  | Largest corporate network for Nordic interests in Africa. Members include companies from all sectors, educational institutions, funding institutions resident ambassadors, organisations, and various trade associations, UN Organisation and NGOs   | <ul style="list-style-type: none"> <li>△ Coordinates a wide range of topics relevant for companies that are doing or wish to do business in the African region.</li> <li>△ Facilitates workshops, guided tours, country visits, educational modules</li> <li>△ Business clusters/thematic areas include: healthcare; fast moving consumer goods; ICT; and logistics and infrastructure</li> </ul>   | Not a city-centric network  |
| African Innovation Foundation<br><a href="http://africaninnovation.org">africaninnovation.org</a>  | The purpose of the African Innovation Foundation is to increase the prosperity of Africans by catalysing the innovation spirit in Africa. We want to see needs-based innovation and change happen.   | <ul style="list-style-type: none"> <li>△ Aims to increase the prosperity of Africans by catalysing the innovation spirit in Africa, envisioning more broadly needs-based innovation and change</li> <li>△ Seeks to support &amp; strengthen the African innovation ecosystems, promote African governance and access to law, and realize social impact.</li> <li>△ Thematic areas include: governance and access to law; innovation and technology; entrepreneurship and capacity-building</li> </ul> | Not a city-centric network  |



# 5 CITY TYPOLOGIES & CASE STUDIES

## 5.1 Relevance of City Typologies

A robust typology of cities can offer an important way to assess the replication or adaptation potential of future/smart city initiatives and identify a much larger group of potential city partners and customers than is possible solely through focus on a limited range of national markets. Our City Typology methodology was developed in collaboration with The Business of Cities.<sup>9</sup>

The cities typology helps find the best fit for UK Businesses in the innovation sector by assessing city models and understanding markets across several variables:

1. City types (different sizes, specialisations, capabilities, demand)
2. National market types (openness, business environment, language, culture)
3. UK business types (have different needs depending on the services, systems and products they export)

Creating a typology is therefore like a form of three-dimensional chess.

This typologies approach is designed to select and prioritise cities that demonstrate different types of:

- △ market segmentation based on different elements of the UK innovation sector
- △ prioritization for determining next steps
- △ demonstration effects of working with particular types of cities
- △ branding and marketing attached to working with cities on particular trajectories or with particular capabilities/influence
- △ global diversification – to add additional lens beyond a country markets approach

In the context of Africa, given the geographic spread alongside varying levels of maturity in innovation and technology, having a city typology approach would help to define more feasible and easily accessible markets for UK companies. It also provides the specificity of a city market needed for UK companies to decide what are the right cities for their product and business strategy and potential partnerships.

<sup>9</sup> <https://www.thebusinessofcities.com/>

As part of the scoping exercise commissioned by Innovate UK, we have selected a small sample of 14 diverse African cities. The cities were selected based on a qualitative assessment of cities that the Catapult and Innovate Teams felt were emerging innovative markets or that other HMG departments have expressed an interest in or are running projects in.

**The 14 cities are:**

|                       |                         |                            |
|-----------------------|-------------------------|----------------------------|
| Addis Ababa, Ethiopia | Kigali, Rwanda          | Johannesburg, South Africa |
| Accra, Ghana          | Dakar, Senegal          | Ekurhuleni, South Africa   |
| Nairobi, Kenya        | Cape Town, South Africa | Zanzibar City, Tanzania    |
| Abuja, Nigeria        | Durban, South Africa    | Dar es Salaam, Tanzania    |
| Lagos, Nigeria        | Pretoria, South Africa  |                            |

It is also important to understand, 'who' is investing in Africa, and where they are investing. Whether it is business to business, business to government or R&I investment, understating the current Foreign Direct Investment landscape is important.

| Country      | Rank vs. 2016 | No. of projects | Share | Change | Country       | 2017 | 2016 | Up/down | 2017 share |
|--------------|---------------|-----------------|-------|--------|---------------|------|------|---------|------------|
| US           | -             | 130             | 18%   | 43%    | South Africa  | 96   | 135  | -       | 13%        |
| UK           | +2            | 72              | 10%   | 76%    | Morocco       | 96   | 81   | +1      | 13%        |
| France       | -1            | 61              | 9%    | -25%   | Kenya         | 67   | 40   | +3      | 9%         |
| China        | -1            | 54              | 8%    | -18%   | Nigeria       | 64   | 51   | +1      | 9%         |
| Germany      | +5            | 39              | 5%    | 105%   | Ethiopia      | 62   | 16   | +7      | 9%         |
| Switzerland  | +1            | 30              | 4%    | 11%    | Egypt         | 56   | 79   | -2      | 8%         |
| South Africa | -1            | 29              | 4%    | 0%     | Ghana         | 43   | 28   | +1      | 5%         |
| Netherlands  | +8            | 22              | 3%    | 175%   | Tanzania      | 35   | 22   | +1      | 5%         |
| UAE          | -4            | 19              | 3%    | -46%   | Algeria       | 24   | 17   | +2      | 3%         |
| Italy        | -1            | 17              | 2%    | -15%   | Côte d'Ivoire | 23   | 34   | -3      | 3%         |
|              |               |                 |       |        | Uganda        | 14   | 9    | +6      | 2%         |
|              |               |                 |       |        | Zimbabwe      | 13   | 7    | +7      | 2%         |
|              |               |                 |       |        | Rwanda        | 12   | 11   | +2      | 2%         |
|              |               |                 |       |        | Mozambique    | 11   | 15   | -1      | 2%         |
|              |               |                 |       |        | Zambia        | 11   | 13   | -       | 2%         |
|              |               |                 |       |        | Others        | 91   | 114  | -       | 13%        |
|              |               |                 |       |        | Total         | 718  | 676  |         | 100%       |

(Quartz Africa, 2018)<sup>10</sup>

“For the first time ever, East Africa became the single largest beneficiary as a region for FDI with 197 projects (27% of total projects). Southern Africa lost the lead as it fared lowest of the four major regions, at 162 projects (23%). Ethiopia, Kenya and Zimbabwe experienced a major uptick in FDI in 2017.’ (Quartz Africa, 2018) ”

<sup>10</sup> <https://qz.com/africa/1451768/us-still-leads-china-in-fdi-investments-in-africa/>

## 5.2 Approach and Insights

### Business to Government Indicators (B2G)

This indicator examines the links between cities and (municipal) governments, including qualitative analyses of the planning strategies of African cities. It finds that most of the African cities in this selection appear to have relatively coherent planning visions that are long-term and well-rounded. At the very least this signals government impetus to govern cities well, although it needs to be assessed alongside actually existing capacities to implement these visions. Most of these plans lack a distinct technological component - reflected as well in the lack of explicit smart city strategies - which indicates consulting opportunities for integrating various technologies, for instance in areas of digitalization.

Cities to watch out for in this area include Kigali, Ekurhuleni, Lagos, Durban, Cape Town, and Johannesburg. These have relatively coherent plans, promising (for the most part) procurement scores, and all present opportunities for integrating technology into the planning system. The first three, especially, are ranked among the smaller- and medium-sized cities in this group, which would entail a lower degree of market saturation.

### Business to Business Indicators (B2B)

This indicator examines business linkages, especially their international and global dimensions. Various global firms have already made inroads into most of these African cities, to varying degrees. On the whole these cities do not rank highly on metrics/indices such as startup economies, real estate investment, and Foreign Direct Investment (FDI).

Cities to watch out for include Nairobi, Lagos, Dar es Salaam, Cape Town, and Johannesburg. These appear to already be on the radar of existing global firms and consultancy rankings.

### Research and Innovation Indicators (R&I)

This indicator examines links between research (spending) and innovation, largely based on national-level data. The low proportion of R&D spending by national governments is a concern, although it should be noted that data from the World Bank and OECD is not up-to-date.

Cities to watch out for include Nairobi, Pretoria, Cape Town, Durban, Johannesburg. These cities appear to have a range of universities, including but not limited to some that rank globally, and are amongst the highest in this selection in terms of government R&D spending. Additionally, the Global Innovation Index, has noted that innovation is an up-and-coming strength of South African cities, especially within their income group, which suggests the ability to “punch above their weight”.

An indicator that we were unable to include in this report, but would also provide insight, is links of African universities in the relevant cities with UK based (and other international) universities through partnerships in research; additionally, some universities have explicit links with their cities, especially in South Africa. This would be something to consider mapping moving forward.



# South Africa

## South Africa – Global Innovation Index (2018)

| GII 2018 rank | Population | Gross Domestic Product | GDP per capita, PPP\$ |
|---------------|------------|------------------------|-----------------------|
| 58            | 56,717,160 | 757.33Bn<br>US(\$)     | 13,544.60<br>US(\$)   |

## GAUTENG PROVINCE

### The Tshimologong Digital Innovation Precinct

The Gauteng province has a growing education and research base with eight universities, nine science councils and a robust private sector. Gauteng is also home to Africa’s first internationally accredited Science and Technology Park (the Innovation Hub) located in Pretoria.

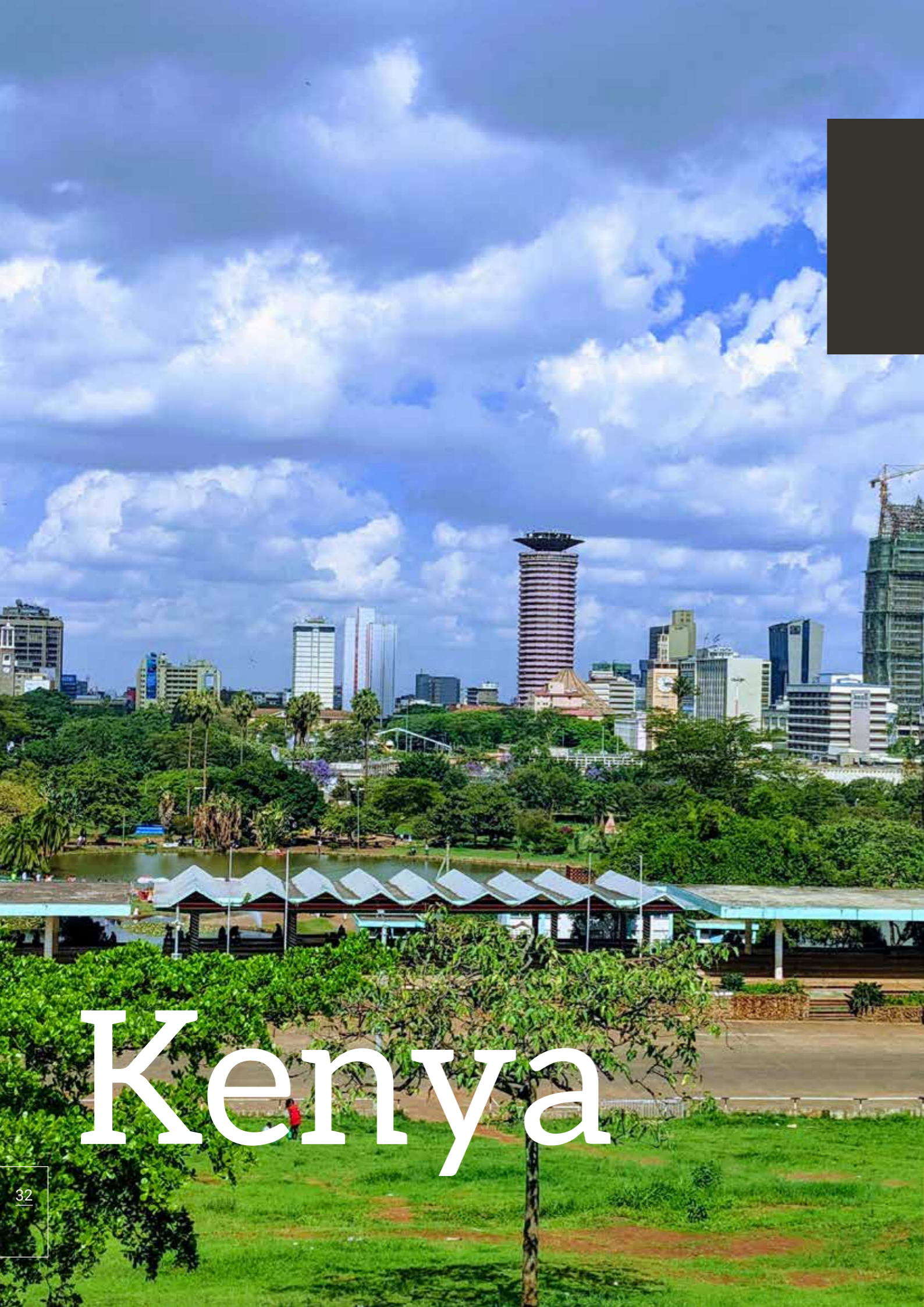
Johannesburg is home to the Tshimologong Digital Innovation Precinct, established in 2016 through a partnership between the Wits University, the Jo’burg Centre for Software Engineering (JCSE), the LINK Centre, and the City of Jo’burg. The hub offers facilities and training in coding and app design, mentorship, facilitating tech start-ups, a tech accelerator programme and postgraduate degree programmes. In its early stages the Precinct attracted the IBM Research laboratory, a \$61-million ten-year project. The lab works in collaboration with the Wits University, the country’s Department of Trade and Industry and Department of Science and Technology on data-driven healthcare, digital urban ecosystems and astronomy.

In July 2018, Tshimologong Digital Innovation Precinct launched a Digital Content Hub. The Hub acts as an incubator of innovative and creative audio-visual content and was launched in partnership with Agence Française de Développement (AFD) and the French Institute of South Africa (IFAS), using a three-year €950,000 grant from the AFD.

The precinct hosts one of the two IBM Research laboratories in Africa. Other large companies, including Microsoft, the South African telecommunications group Telkom and Barclays Africa bank have also joined as strategic partners. Ten strategic founding partners have contributed around ZAR 5 million (US\$340,000) each into the precinct which plans to incubate high-tech start-ups, commercialise research and develop high-level skills among students, working professionals and unemployed youth.

The Precinct’s success can be attributed to a combination of factors including: its multi-stakeholder approach, proximity to inner city, a convivial mixed-use setting that allows multiple generations to interact and helping organisations re-imagine their role and create bridges to the real economy.





## Kenya – Global Innovation Index (2018)

| GII 2018 rank | Population | Gross Domestic Product | GDP per capita, PPP\$ |
|---------------|------------|------------------------|-----------------------|
| 78            | 49,699,860 | 163.38Bn<br>US(\$)     | 3,491.12<br>US(\$)    |

## I HUB NAIROBI

iHub Nairobi is a network and meeting place that enables Kenya's innovators to bring their ideas to life. Founded in 2013, it was the first hub of its kind in Africa, aiming to facilitate the progression of technologies from idea stage to real product.

iHub's official mission is to catalyse the growth of the Kenyan tech community by connecting people, supporting start-ups and surfacing information. The hub embraces the concept of open innovation by nurturing an enabling environment and a collaborative space where a community of technology entrepreneurs can grow and share ideas. Through the iHub, the technology community, industry, academia, investors and venture capitalists can meet, share ideas and collaborate, turning these ideas into action with help from an in-house support unit.

iHub is currently engaged with 104 companies. For 2019, the hub has placed a special emphasis on recruiting and supporting more women entrepreneurs. iHub Nairobi is also the home of the AI Kenya Podcast.



# Kenya

## SERVICE OFFERINGS

- △ **Co-working spaces:** At the heart of iHub are co-working facilities for early-stage start-ups, entrepreneurs and freelancers. This space was carefully designed to give the hub a feeling of openness, fun and flair. These spaces are complemented by an in-house coffee shop which acts as a centre for networking for the community. The hub provides high speed internet connectivity, which was freely provided by a commercial organisation, which helps accelerate collaboration among members. The hub also provides back-up internet for added redundancy. Completing the infrastructure provision, the hub offers secure server infrastructure allowing members to develop their digital products and services.
- △ **Online community:** The hub has nurtured a large and active online community. This enables start-ups and entrepreneurs that are not based in Nairobi to benefit from the hub and enables members to draw on expertise from others all over the world. Online hub members are able to network with other members, attend online events and see job opportunities.
- △ **iHub Research:** Conducts qualitative and quantitative studies on technology innovation, entrepreneurship and digital governance in Africa. The team comprises researchers, project managers, data scientists and hardware engineers, and also receives support from global research associates and fellows. Partners and clients include the World Bank, Google, Rockefeller Foundation, McArthur Foundation and the International Development Research Centre.
- △ **iHub Consulting:** Launched in 2012, iHub Consulting provides support and advisory services to established organisations in need of help with technology innovation. The hub recruits consultants from its own diverse community of freelancers to offer services in the areas of project management, development, design and quality assurance. This service has the benefit of helping existing companies innovate, but also exposes freelancers to projects they would not normally be exposed to. iHub Consulting is now positioned as a world-class technology consultancy.
- △ **iHub UXLab:** This lab was the first of its kind in sub-Saharan Africa and aims to develop a design-thinking culture and a user-centred approach to problem solving. The lab helps its clients (start-ups, entrepreneurs, not-for-profit organisations and corporates) to put people at the centre of all products, processes and business development plans. Specific services include user research, ideation sessions, usability testing, prototyping, graphic design, interaction design, experience design and workshop facilitation.
- △ **iHub Community Infrastructure:** The hub provides cloud-based infrastructure that acts as a development environment for entrepreneurs and start-ups at the hub. It includes the previously separate iHub Cluster which was set-up to act as a sandbox for parallel programming, as well as to create a centre for high performance computing.
- △ **Events:** The hub runs an extensive events programme which enables iHub members to improve their skills and knowledge around relevant issues or current trends. These events range from community discussions and meet-ups, to hackathons, corporate-hosted events and product launches.

## RECENT SUCCESSES

### Sky.Garden

iHub Nairobi recently completed a large accelerator programme with the World Bank that included start-ups from Uganda, Tanzania, Burundi, Ethiopia, and Somalia. The programme supported innovative businesses such as Zay Ride, 'the Uber of Africa' to scale.

Also recently emerging from iHub, is the company Sky.Garden, an eCommerce platform built for African businesses. The start-up has registered over 3,000 unique sellers who now have access to their very own Sky.Garden web shops. These web shop owners have more than 23,000 unique products uploaded across 30 different categories. Sky.Garden seeks to help smaller businesses and individuals access the same high-quality online platforms previously reserved for top tier businesses and to reach market segments, such as informal settlements that don't participate in high-end eCommerce platforms. In 2018, Sky.Garden received \$1.2M from investors and venture capitalists.

### BRCK

Africa faces an internet connectivity challenge due to the lack of infrastructure to support traditional connectivity devices that have been designed in Europe and the US, and do not fit with Africa's infrastructure needs - where electricity and internet connections are problematic in both urban and rural areas. BRCK seeks to overcome the connectivity issue in Africa by creating African connectivity products made for Africa's unique landscape.

The company focuses on three main areas; consumer connectivity, education, and enterprise IoT. Since they started in 2013, they have created rugged and portable products for enterprise connectivity, computing, storage, and IoT needs. Besides designing circuit boards and ruggedized cases, the team also writes the firmware, operating systems and cloud stack of software that allows all of the devices to be remotely managed. There are cloud-syncing platforms for content, data from sensors and edge of the network storage.

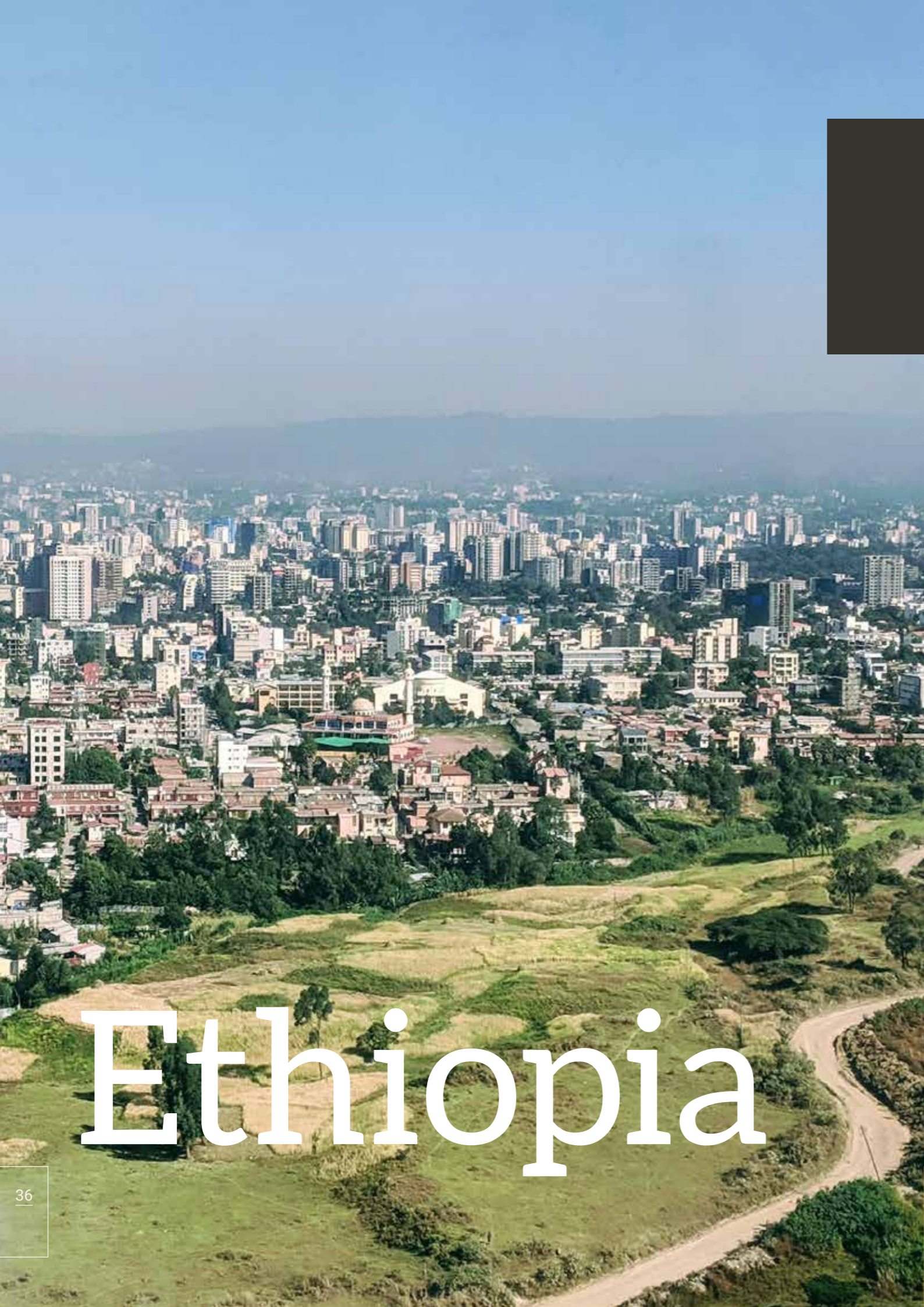
Sky.Garden uses the BRCK platform to connect their clients in the informal settlement of Kibera which lacks basic infrastructure to run traditional connectivity devices. This has created a thriving eCommerce business for second-hand products and clothes in the settlement.

### Ushahidi

Ushahidi, which translates to "testimony" in Swahili, was developed to map reports of violence in Kenya after the post-election violence in 2008. Since then, thousands have used the crowdsourcing tools for citizen engagement. Ushahidi provides software and services to numerous sectors and civil society to help improve the bottom up flow of information.

Ushahidi has used the BRCK platform to access hard to reach populations, for example in urban informal settlements for citizen and voter engagement and tracking, especially where there is a high likelihood of violence related to political situations.





# Ethiopia

## Ethiopia – Global Innovation Index (2018)

| GII 2018 rank | Population  | Gross Domestic Product | GDP per capita, PPP\$ |
|---------------|-------------|------------------------|-----------------------|
| 110           | 101,853,000 | 69.22Bn<br>US(\$)      | 1,800.73<br>US(\$)    |

## ADDIS ABABA UN Habitat Regional Office

The UN Habitat team in Addis Ababa is focused on supporting the concept of planned cities and resilience. They plan projects to closely align with the 'The New Urban Agenda' for Ethiopia which has housing at the centre. The regional team work closely with the National Government and has an MOU with the Ministry of Urban Development and Construction looking at urban planning, regional planning, and connected cities. For example, the Habitat team is currently working on a DFID funded piece of work identified by the Government in the industrial park in Awassa (Hawassa), in supporting the city in updating the urban plan.

In describing the work of the Addis team, Aklilu Fikresilassie, the regional manager simply says: "planning is everything for us."

The Addis Habitat team has previously worked in close collaboration with the UK and UK organisations. In 2017, the team worked with Oxford and LSE on a research project to contextualise smart cities in Ethiopia. The Addis team was the principle investigator for the report which compared six secondary cities, to create a set of parameters around what smart means for Ethiopian Cities for key sectors such as mobility, economy, governance, and people focused cities.

The Addis team has a strong focus on 'space and place' of cities, particularly Addis Ababa, defining the challenge as having a monocentric view/plan of the city when a polycentric plan with diffused resources is needed. Their work hopes to identify the urban functions based on the existing resources and will impact a few of the key city issues of:

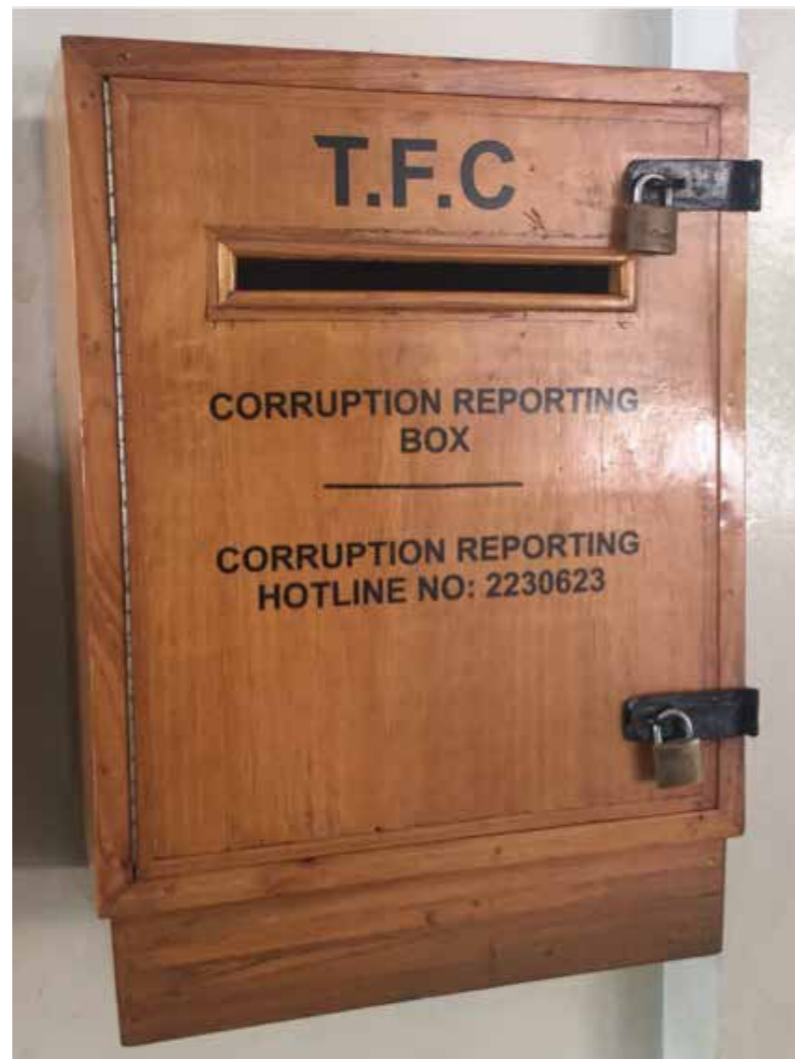
- △ Transport - light rail, and a challenge of not connecting the city
- △ ICT - and the challenges of infrastructure that doesn't support internet connections; and subsequently data and how they think about data systems
- △ Housing Issue - government supplies a huge amount of public housing, with a challenge of not having their assets mapped as to what houses and land they own.
- △ Importance of citizen led design and planning policy and regulatory influence needed - cluster planning is needed.

# 6 CHALLENGES IN WORKING ACROSS AFRICAN CITIES

It is impossible to make blanket statements about the challenges for businesses wishing to work in Africa. Across the 54 African countries there are 54 different business environments each with their own characteristics and distinct routes to market. However, there are several pan-African issues to consider on two fronts.

Firstly, it is important to understand that many African countries face geopolitical challenges from conflict to climate change. Recently, there have been violent elections in Nigeria, terrorist attacks in Kenya and hurricanes in Mozambique. There is a plethora of issues that are outside the general business model but significantly impact the business environment in Africa.

Secondly, there are several business issues that can be found across many African countries. Just to name a few, there is the unavailability of talent, the lack of supporting infrastructure and the prevalence of corruption. These few are highlighted here, although there are many challenges to overcome on a country per country basis.



## Corruption

Corruption in Africa is so ingrained in the 'way of doing business', it will be difficult to both ignore or to address. From simply gaining access to a building to attend a meeting all the way to who gets major government contracts, corruption infiltrates every level and process of doing business in Africa.

African countries are making institutional efforts to address this widespread issue, but the progress of change may be incremental.

“These changes require a shift in attitudes and beliefs from the general public, business and political leaders. Dealing with the debilitating effects of corruption on business is imperative if the bright future of Africa is to become a reality. Transparency International perception reports should be intensified and made at shorter regular intervals, say every six months. TI should get regular financial support, for its surveys, from the international community in order to carry out more intensive surveys with a wider reach and exposure to help Africa deal with corruption successfully. (Gekonge, 2014)<sup>11</sup>”

Governments, and in particular the UK Government, will need to use political soft power to help influence and support institutional change around corruption in the long term. In the short term, UK businesses will need to tread carefully and determine how they legally and financially navigate a business environment where the practice of corruption is seen as the norm.

## Infrastructure

Innovation depends on infrastructure to operate and drive economic growth and Africa is widely lacking in basic developed infrastructure.

“Infrastructure is key and critical in doing business anywhere in the world. Without good roads, a functioning rail system, an effective air transport system, and a speedy telephone and Internet systems—although cell phone and Internet services are growing rapidly and widely in Africa—there will be no meaningful business transactions in order, for example, to achieve an efficient and effective supply chain management. If there is no reliable water, an effective sanitation system, and electricity supply, businesses will not function continuously, efficiently and effectively and acquiring alternative sources of these resources add to operating costs that make the country less competitive and thus unable to effectively market products in the domestic and global markets.

Except for the Republic of South Africa, infrastructure is very poor in many African countries. The roads are in a deplorable state and congested, the rail system does not function well and is not reliable, and the telephone and air transport services are inadequate, within the countries and between the countries of Africa (Mbaku, 2004). Despite this appalling state of infrastructure in Africa, it is important to note that many African nations have realized the vital importance of the infrastructure in meaningful national development and are, with the assistance from China particularly, currently investing a lot of resources in infrastructure development but not enough to make an immediate impact (Wang 2008). A lot still needs to be done now and in the future. (Gekonge, 2014)<sup>11</sup>”

However, where there is a failing, there is also an opportunity derived from challenge driven innovation. Africa's drive to build a functioning infrastructure system that can support an innovation-based economy presents an opportunity to leapfrog some of the traditional approaches to bricks and mortar and to employ new innovations that can mitigate 21st century challenges of climate change and resilience needs.



<sup>11</sup> <https://www.igi-global.com/book/emerging-business-opportunities-africa/76725>

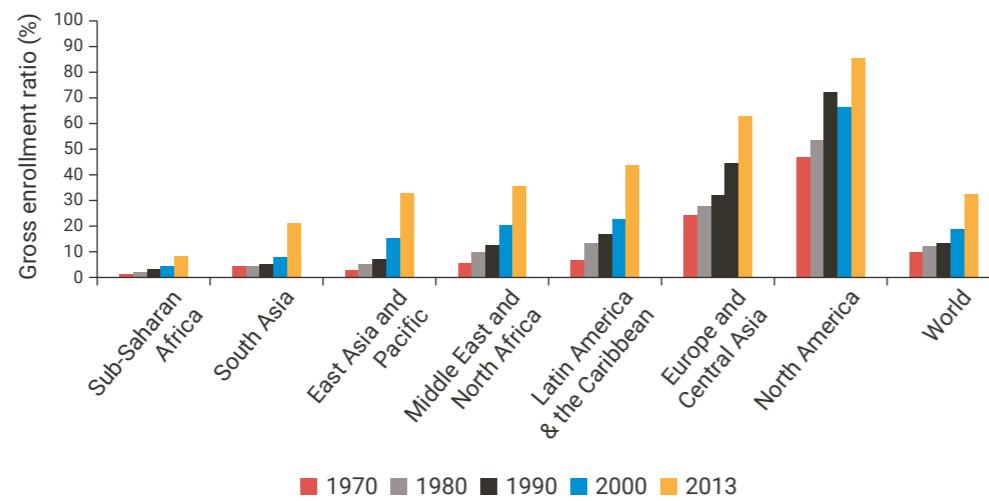
### Talent Pool and Skills

Advanced educational and technical skills are critical in creating and supporting a successful innovation and entrepreneurship ecosystem. However, Africa's educational attainment levels are notoriously low across the continent.

Whilst Millennium Development goals have helped push Sub-Saharan African countries to increase secondary school enrolment from 57% in the late 90's to 70% by 2005 (UNESCO, 2007)<sup>12</sup>, studies have shown that comprehension in both reading and math is extremely low. The problem is further exacerbated by an extreme gender gap in education.

**Gross enrolment ratio, by region, 1970-2013**

Source: Calculations are based on UIS data.



Across the continent of 1.2 Billion people, approximately 12 Million are engaged in university level education, or 1%; a figure which fluctuates between countries. African countries recognise the direct link between education and economics and are working to address the issue.

“Agenda 2063 is the plan for Africa's transformation, agreed by the 54 members of the African Union in 2013. It sets out a 50-year plan 'to build a prosperous and united Africa based on shared values and a common destiny'. The plan promotes an African 'renaissance', one that hinges on public and private investment in education, technology, science and research. (British Council, 2016)<sup>13</sup>”

<sup>12</sup> <https://unesdoc.unesco.org/ark:/48223/pf0000157229>

<sup>13</sup> <https://www.britishcouncil.org/voices-magazine/universities-are-heart-africas-economic-rise>



# 7 RECOMMENDATIONS FOR AFRICAN CITY MARKET ENTRY

With HMG's renewed commitment to Sub-Saharan Africa, there are several HMG led or sponsored programmes, with associated people and places that may provide an entry point for UK Innovation Businesses seeking to capitalise on the emerging innovation market in Africa.

## African City recommendations

The City Typology analysis identified clusters of cities in a limited sample group of 14 cities. This is meant to provide insight into African cities at a higher level and should not be construed as a target list.

In the B2G category, meaning how conducive is the market environment for companies to engage in business with the city government, there were cities that quantitatively present as favourable in doing business with innovation companies. In particular, procurement processes are clearly defined, innovation plans are in place, and the city government presents as having an interest in working with foreign innovation businesses. These cities include Kigali, Ekurhuleni, Lagos, Durban, Cape Town, and Johannesburg. Further, the cities identified here that are outside of South Africa will most likely be less saturated with competing foreign markets. Not covered as an indicator in this study, but to be considered for future expansion of this intel, understanding which cities departments have set up to engage in business with foreign companies, would be helpful – along the lines of a 'friendliness indicator'.

City led Business to Business environments tend to provide smaller innovation companies and entrepreneurs with opportunities to be part of a larger supply chain and ecosystem. Nairobi, Lagos, Dar es Salaam, Cape Town, and Johannesburg appear to be on the radar of existing global firms and consultancy rankings.

Some companies will fare better in cities that also have a thriving research and innovation environment led by strong universities and high level or government R&D investment. Once again, the South African cities score high on this front, followed by Nairobi.

You will notice that across the three categories several cities score high across all three. The South African Cities top all the lists and appear to provide the most conducive overall environment for UK Innovation companies seeking an entry point to African innovation market.

As a starting point for entry that would appear to provide the highest potential for opportunity with the least resistance to market barriers, we would recommend Kenya and South Africa. Although approaches to each of these two markets would differ.

Whilst other cities markets provide opportunities, they require additional resources and work to establish a UK innovation presence, simply given a ready-made landing spot in Nairobi and the South African cities. After South Africa and Kenya, the next best opportunity would likely be found in Nigeria, given the UK PM's commitment to South African, Kenya and Nigeria. Nigeria was excluded from the in-person scoping visit of this exercise due to political unrest and violence from recent elections – but should certainly remain on the radar as one of the top three.

In our opinion – Kenya and South Africa, given the city typology indicators, existing HMG funding programmes, joined up staff and existing strategic partnerships, simply provide the best option for 'low hanging fruit'\* as a first foray into the African market.

## Next steps and potential funding opportunities

There are existing key programmes to be exploited in South Africa - the existing funding opportunity through the Global Future Cities Prosperity Fund (GFCPF) programmes as well as the newly established DCMS Tech Hub, in close collaboration with the soon to be established DFID Innovation Partnership.

In Kenya, the most promising approach is to work closely across the HMG departments and their integrated offers and priorities. This would require an investment of time and travel costs to build solid relationships with the HMG Nairobi team as well as initially participating in events and meetings led by HMG and partners in Nairobi or more broadly in Kenya.

The approach of working across HMG in Nairobi opens up multiple funding streams and opportunities across the market. Working closely with DFID and DIT on the Global Challenges Research Fund and the Newton Fund provide 'low hanging fruit' opportunities.

UK companies that are ready to commercialise and deploy in East Africa without assistance would find the British Chamber of Commerce in Nairobi as a very competent partner as well as soft landing space.

**Connected Places Catapult looks forward to working with businesses and organisations to pursue equitable partnerships across the Africa Innovation landscape.**

\*Please forgive our use of the phrase 'low hanging fruit.'

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