



**Faith Blakemore, Jan Timo Walter** (Lead Authors)

Bintou Adekoya, Crosby Tashie Hunda

# Investing for Innovation in Africa

**A review of the African innovation landscape  
and its key actors**



Steinbeis  
Europa Zentrum



**ENRICH  
IN AFRICA**



*Faith Blakemore, Jan Timo Walter*  
Investing for Innovation in Africa



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n°101004709. This document reflects only the authors' views, and the Commission is not responsible for any use that may be made of the information it contains.

**Legal Notice:** Neither the European Commission, nor any person acting on behalf of the Commission is responsible for the use, which might be made, of the following information. The views expressed in this report are those of the authors and do not necessarily reflect those of the European Commission.

© EIA Consortium 2023

Reproduction is authorized provided the source is acknowledged

Project Website: [www.enrich-in-africa-project.eu](http://www.enrich-in-africa-project.eu)

## **Authors**

Faith Blakemore (*Steinbeis Europa Zentrum, Germany*)

Jan Timo Walter (*Steinbeis Europa Zentrum, Germany*)

## **Contributors**

Bintou Adekoya (*AfricArena, South Africa*)

Crosby Tashie Hunda (*AfricArena, South Africa*)



**Faith Blakemore, Jan Timo Walter** (Lead Authors)

Bintou Adekoya, Crosby Tashie Hunda

---

# **Investing for Innovation in Africa**

**A review of the African innovation landscape  
and its key actors**



## **Imprint**

© 2022 Steinbeis-Edition

All rights reserved. No part of this book may be reprinted, reproduced, or utilised in any form by any electronic, mechanical, or other means now known or hereafter invented, including photocopying, microfilming, and recording or in any information storage or retrieval system without written permission from the publisher.

Faith Blakemore, Jan Timo Walter, Bintou Adekoya, Crosby Tashie Hunda  
Investing for Innovation in Africa. A review of the African innovation landscape and its key actors

1<sup>st</sup> edition, 2022 | Steinbeis-Edition, Stuttgart  
ISBN 978-3-95663-283-9  
This book is also available as an e-book: ISBN 978-3-95663-284-6

Layout: Steinbeis-Edition | Figures: Faith Blakemore, Jan Timo Walter, Igor Nunes Vidal  
Cover picture: Liu zishan / shutterstock.com  
Production: e.kurz+co druck und medientechnik gmbh, Stuttgart

The platform provided by Steinbeis makes us a reliable partner for company startups and projects. We provide support to people and organizations, not only in science and academia, but also in business. Our aim is to leverage the know-how derived from research, development, consulting, and training projects and to transfer this knowledge into application – with a clear focus on entrepreneurial practice. Over 2,000 business enterprises have already been founded on the back of the Steinbeis platform. The outcome? A network spanning over 6,000 experts in approximately 1,100 business enterprises – working on projects with more than 10,000 clients every year. Our network provides professional support to enterprises and employees in acquiring competence, thus securing success in the face of competition. Steinbeis-Edition publishes selected works mirroring the scope of the Steinbeis Network expertise.

222805-2022-12 | [www.steinbeis-edition.de](http://www.steinbeis-edition.de)

## Foreword

The diversity of Africa's innovation ecosystem is fascinating and at the same time challenging. Keeping pace on the continuous evolution on the fifty-four different innovation landscapes shaping the African continent demands dynamism, flexibility, and an investment of resources.

We -in the framework of the ENRICH in Africa project- have taken up this challenge with this publication providing an overview on the main developments currently occurring in this ENRICH-ing, innovative, vibrant, and creative environment.

In this publication we analyse, on the one hand, the innovation focus areas, priorities and differences between various African regions and countries. On the other hand, we also take a look at the notable and complementary interplay occurring between public and private actors, as well as between regional and national innovation agencies and different international organisations and donors.

The African innovation ecosystem is being shaped through a multi-layer and multi-faceted interaction between different players, across different disciplines, characterised by multicultural diversity and great creativity. This is fertile ground to incentivise opportunities for collaboration but also demands having a thorough understanding to best navigate the different possibilities available.

The joint effort of the authors, consolidated in this publication, precisely aims at shedding light and delivering orientation to those curious about the lively African innovation ecosystem.

We wish you an interesting and happy reading!

*Eduardo Herrmann*  
*ENRICH in Africa Centre*  
*Director*

# Table of Contents

<b>List of Figures</b> .....	<b>7</b>
<b>List of Tables</b> .....	<b>8</b>
<b>Abbreviations</b> .....	<b>9</b>
<b>1. Introduction to the Report</b> .....	<b>12</b>
<b>2. Africa’s National Research &amp; Innovation Advancements</b> .....	<b>14</b>
2.1. Africa within the Index and Ranking Landscape .....	14
2.1.1. Methodology.....	14
2.1.2. Regional Results .....	16
2.1.3. Country Results.....	19
2.2. Research and Development in Africa.....	23
2.2.1. Research and Development Expenditure .....	23
2.2.2. Distribution and Amount of Researchers.....	29
2.3. African Developments within the Global Innovation Index 2021 (GII).....	31
2.3.1. Methodology of the GII and Data Contextualisation .....	31
2.3.2. General Observations- Africa.....	32
2.3.3. Individual Country Analyses .....	35
<b>3. Start-up Innovation Support Across Africa – An Overview</b> .....	<b>52</b>
3.1. Innovation Overview Across Africa (MET).....	52
3.1.1. Start-up/Technology Ecosystems .....	52
3.1.2. Challenges & Opportunities (Funding, Infrastructure, Education, and regulation) .....	55
3.2. Public Sector Innovation Support: Policies, Regulations and Investment Programmes (SEZ) .....	61
3.2.1. Intragovernmental Strategies, Plans & Support Programmes .....	61
3.2.2. National Innovation Support & Policies across Africa .....	71
3.2.3. Foreign Countries’ Strategies & Investment Programmes for Africa.....	79
3.3. Private Sector Innovation Support: Networks, Corporate Involvement and Start-Up Funding (MET)..	90
3.3.1. Tech Hubs and Start-up Support Networks.....	90
3.3.2. Start-up Funding .....	91
3.3.3. Corporate Involvement.....	94
<b>4. Conclusion</b> .....	<b>96</b>
4.1. Outcomes of Index Analyses – Chapter 2.....	96
4.2. Outcomes of Start-up Innovation Support Overview – Chapter 3.....	98
<b>References</b> .....	<b>103</b>
<b>Appendix</b> .....	<b>110</b>
Appendix 1: Indexes and rankings used for analysis – section 2.1 .....	110
Appendix 2: Country ranking according to the African regions .....	112
Appendix 3: Overall country rankings according to six categories.....	113
Appendix 4: Country performance: Population, location, and GDP data.....	114
Appendix 5: Gross Expenditure on R&D (GERD) and Government Expenditure on R&D indicators. ....	116
Appendix 6: GII pillars, sub-pillars, and indicators .....	117
Appendix 7: Country GII Data.....	120

## List of Figures

Figure 1: Five African regions according to the African Union.....	16
Figure 2: Number of countries appearing in top 5, 10, 15 and overall number of countries per region .....	17
Figure 3: Performance (over or under) of African regions in the six innovation-relevant categories .....	18
Figure 4: Top 15 African countries ranked according to their score across all categories.....	20
Figure 5: Top 15 African countries according to their rank within each category .....	21
Figure 6: GDP and GDP per capita for the top 15 ranked countries.....	21
Figure 7: GDP (US \$ Billion) dedicated to R&D as compared to R&D as Percentage of GDP.....	24
Figure 8: GERD and GOVERD, both as percentage of GDP .....	26
Figure 9: GOVERD in PPP\$ M and PPP\$ per capita .....	27
Figure 10: GERD by source of funds.....	28
Figure 11: Percentage distribution of researchers worldwide.....	29
Figure 12: Researchers in R&D (per 1. Mio. People) .....	30
Figure 13: GII Index Structure .....	32
Figure 14: GII Innovation input to output performance, 2021 .....	34
Figure 15: Individual Country – Pillar Rankings Comparison.....	36
Figure 16: South Africa GII mapping .....	37
Figure 17: Mauritius GII mapping.....	40
Figure 18: Morocco GII mapping.....	43
Figure 19: Tunisia GII mapping.....	46
Figure 20: Egypt GII mapping.....	49
Figure 21: African Start-up fundraising map 2021 .....	53
Figure 22: Survey results on biggest challenges for entrepreneurs when proving their concept.....	56
Figure 23: Survey results on financing for start-ups .....	56
Figure 24: Number of tech start-ups securing funding in Africa.....	59
Figure 25: STI importance within STISA-2024 .....	63
Figure 26: Digital Transformation Strategy for Africa- themes, critical sectors and pillars.....	65
Figure 27: Gender Innovation Lab mission .....	69
Figure 28: Locations of Acceleration Lab Initiative Offices .....	71
Figure 29: Year of Adoptions of first STI policy of 15 African countries.....	73
Figure 30: Timeline of SBAs and Start-up Acts in Africa, including the number of interventions.....	76
Figure 31: Start-up Act developments in Africa from 2018 to 2021 .....	78
Figure 32: The 21 African countries the USADF operates in.....	84
Figure 33: Locational distribution by percentage of Chinese investments in Africa.....	85
Figure 34: African countries with a BRI MoU .....	86
Figure 35: Total funding raised by start-ups in 2021 .....	92

## List of Tables

Table 1: Categorization of the analysed 17 innovation-relevant indexes.....	15
Table 2: Types of African innovation ecosystems according to The African Foresight Group .....	22
Table 3: Gross Research and Development Expenditure (GERD) & Government Expenditure (GOVERD) indicators covered.....	24
Table 4: Indicators focused on R&D Researchers Covered.....	29
Table 5: African GII Rankings.....	33
Table 6: African Country Innovation Performance (within income levels) .....	34
Table 7: Largest FDI investors in Africa by capital invested, number of projects and jobs created (2014–2018).....	79
Table 8: Models of open innovation engagement .....	94
Table 9: Comparison between innovation ranking, R&D ranking and GII's ranking of top 10 countries .....	97

## Abbreviations

ABAN	African Business Angel Network
AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
ASTII	African Science Technology and Innovation Indicators
AU	African Union
AUC	African Union Commission
AUDA	African Union Development Agency
BRI	Belt and Road Initiative (China)
BUILD	Better Utilization of Investments Leading to Development Act (BUILD Act, US)
CCHub	Co-Creation Hub
CESA	Continental Education Strategy for Africa
CII-EXIM	Confederation of Indian Industry - Export–Import Bank
CVC	Corporate venture capital
DE4A	Digital Economy for Africa Initiative
DFC	U.S. International Development Finance Corporation (US)
DRC	Democratic Republic of the Congo
EC	European Commission
ECB	European Central Bank
EiA	ENRICH in Africa
EU	European Union
e-VBAB	e-Vidyabharati and e-Aarogyabharati (India)
EY	Ernst & Young
GCRF	Global Challenges Research Fund (UK)
FDI	Foreign Direct Investment
FOCAC	Forum on China-Africa Cooperation
GDP	Gross Domestic Product
GERD	Gross Expenditure on Research & Development
GII	Global Innovation Index
GIL	Gender Innovation Lab
GOVERD	Government Expenditure on Research & Development
HDIF	Human Development Innovation Fund (UK)
HLPD	High Level Policy Dialogue
IAFS	India–Africa Forum Summit
ICANN	Internet Corporation for Assigned Names and Numbers
ICT	Information and Communication Technology
ID	Identity document
IDA	International Development Association

IFC	International Finance Corporation
INAFEC	India Africa Economic Cooperation Fund (India)
IP	Intellectual Property
IPO	Initial public offering
IsDB	Islamic Development Bank
ITEC	Indian Technical and Economic Cooperation (India)
ITU	International Telecommunications Union
KTN	Knowledge Transfer Network (UK)
LOC	Lines of Credit
LP	Limited partner
M&A	Mergers and acquisitions
M&E	Monitoring & Evaluation
MCC	Millennium Challenge Corporation (US)
MEST	Meltwater Entrepreneurial School of Technology
MET	Methys Consulting Group
MIIA	Millennium Impact for Infrastructure Accelerator
NEPAD	New Partnership for Africa's Development
ODI	Overseas Development Institute (UK)
OPIC	Overseas Private Investment Corporation
PACE	Partnering to Accelerate Entrepreneurship (US)
PANEP	Pan African E-network Project
PCT	Patent Corporation Treaty
PIDA	Programme for Infrastructure Development in Africa
PoC	Proof-of-concept
PPP	Purchasing Power Parity
R&D	Research & Development
R&I	Research & Innovation
REC	Regional Economic Community
RLC	Regional Leadership Centres
RTO	Research Technology Organisation
S&T	Science and Technology
SBA	Small Business Act
SDG	Sustainable Development Goals
SEZ	Steinbeis Europa Zentrum
SIN	Science and Innovation Network (UK)
SME	Small and medium-sized enterprise
SOE	State-Owned Enterprise
SRIA	Strengthening Research Institutions in Africa (UK)
STI	Science, Technology and Innovation

---

STISA	Science, Technology and Innovation Strategy for Africa
TAM	Total addressable market
TMT	Technology, Media, and Telecommunications (sector)
UIS	UNESCO Institute for Statistics
UNECA	United Nations Economic Commission for Africa
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States of America
USADF	United States African Development Foundation (US)
VC	Venture Capital
VC4A	Venture Capital for Africa (organisation)
YALI	Young African Leaders Initiative (US)

# 1. Introduction to the Report

Innovation is an increasingly important area of international collaboration, which is bringing in new public and private actors into the Science Technology and Innovation (STI)-collaboration domain. Over the past decade, we have seen a revolution in the innovation sectors of both Africa and Europe. New actors, such as tech hubs (incubators, accelerators, fab-labs etc.), tech entrepreneurs, venture capital (VC) investors, corporate innovators, regional innovation clusters etc., have become key players in the African innovation landscapes (chapter 3). Existing research actors, such as Research Technology Organisations (RTOs) and Universities have set up Technology Transfer Organisations and are exploring new models of technology management and exchange to stimulate the utilization of scientific research for the public (AU-EU High Level Policy Dialogue, 2020). It is, therefore, more important now than ever, that Europe and Africa find common areas for support, collaboration, and action if they are to maximise the benefits to both areas.

Africa has, up until now, struggled to compete with larger, more economically powerful countries where innovation inputs have been balanced to provide greater innovation outputs (chapter 2). In recent years, however, innovation success in Africa has been growing dramatically, with the continent providing a great impact on global markets as it increases inputs and strategies to a point where innovation outputs can excel.

Innovation is an important factor for the development of African countries considering the predicted increase in population and gross domestic product (GDP) to occur in the coming years (chapter 2). Such socio-economic pressure is resulting in increased challenges, which is, on the other hand, also providing incredible opportunities for African innovation to respond (chapter 3). The growth in venture capital investment and success as well as the explosion in the number of tech hubs indicates a direction of travel, which is expected to bring about a greater balance and degree of maturity to many of the countries. Mauritius and South Africa are already demonstrating great success in producing innovation environments that can support an increasing volume of innovative products and services (chapter 2). The African spirit of innovation has already seen mobile platforms become highly established in the African continent and FinTech dominating the technology sector (chapter 3). This success demonstrates the points of challenge for the countries, with innovation responding to bring about societal impact.

What is known, is the importance of each African country taking responsibility and affectively implementing new strategies for increasing innovation (chapter 2). With fifty-four African countries and fifty-four different business environments, each with their own characteristics and distinct routes to market, however, there is a need for combined priorities and activities, viewing a pan-African level (chapter 3).

## Report Context and Guidance for Reading

This report has been generated in response to a request from the European Commission (EC) to provide them with supporting data to understand the overall landscape of innovation in and across Africa. This report will provide information that will be used in the context of the EC and African Union (AU) High-level Policy Dialogue group, and the current development of the EU-AU Innovation Strategy.

The report has been designed to provide a current snapshot of the status of innovation activities across Africa at the time of writing, with Chapter 2 providing the big-picture story of innovation in Africa through evaluating success as seen from a data-driven perspective, conducted by Steinbeis Europa Zentrum (SEZ), coordinators of the ENRICH in Africa project. This is broken down over three distinct areas. Firstly, an analysis of Africa across seventeen individual global indexes, focusing on innovation indicators, which reveals a new ranking list

Whether it be through its market or its natural resources, Africa has an undeniable potential to fulfil its potential in the upcoming decades. This is especially true regarding the continent's technological and entrepreneurial innovation output, for which there are strong opportunities for acceleration through international and cross-sectoral cooperation. As the domain of Science, Technology and Innovation (STI) increasingly relies on collaboration, it becomes fundamental to be aware of Africa's key players, opportunities and challenges. This way the European Union and different European agents can contribute to and benefit from the strengthening of the African innovative landscape.

This report offers a high-level overview of the development of the innovative capabilities present across the African continent. From the Maghreb to the Serengeti, from incubators to venture capital investors, this publication provides a detailed panorama of the way different countries are positively impacting regional and global markets, through analysing core indicators in the field of innovation jointly with insights on the opportunities they represent. When one considers the region's idiosyncrasies, such as its youthful and growing population, rising internet usage, and the application of emerging technologies; it becomes clear that the future global market is destined to be shaped by the innovative solutions that will come from this influential continent.

[www.enrich-in-africa-project.eu](http://www.enrich-in-africa-project.eu)

ISBN 978-3-95663-283-9



9 783956 632839

[www.steinbeis-edition.de](http://www.steinbeis-edition.de)

 **Steinbeis-Edition**