

Republic of Zambia Ministry of Technology and Science



Unlocking Public and Private Finance for the Poor

### ZAMBIA Inclusive Digital Economy Status Report 2022

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t is my pleasure to share this publication – The Zambia Inclusive Digital Economy Status Report – which provides a comprehensive assessment of developments in our country's efforts towards digitalisation. This report could not have been developed at a better time as now when the current New Dawn Administration has placed a renewed emphasis on transforming the country into a digital economy, which broadly entails ensuring that we have enhanced the adoption of digital technologies in all the key sectors of the economy.

Zambia continues to make positive strides towards increasing adoption of new and emerging technologies. One of the key success stories is the increased adoption of mobile money services which has contributed significantly to increased financial inclusion from 59.3 percent in 2015 to 69.4 percent in 2020. However, there are still a lot of opportunities for adoption of digital technologies in the country. There are also a number of challenges which need to be addressed to propel Zambia into the fourth industrial revolution. This report has extensively identified the key bottlenecks to increased adoption of digital technologies which include:

- i. low smartphone penetration,
- ii. limited last mile connectivity,
- iii. poor digital skills, and
- iv. inadequate platforms to deliver digital services as well as limited support for digital innovation and entrepreneurship.

These challenges and opportunities presented in the Inclusive Zambia Digital Economy Status Report will inform the key pillars for the digital transformation strategy that government intends to develop.

The Zambian Government is committed to ensuring that it creates a conducive and enabling environment for all state and non-state actors to drive the digital revolution in our country. We are confident that our efforts towards establishing an enabling policy and regulatory framework will provide a solid foundation for the digitalisation of the country. There are a number of benefits which can be anticipated from the transformation of the country into a digital economy. For instance, the application and use of digital technologies improves operational efficiencies, leads to innovation, improves access to local and international markets and enhances the overall productivity and growth of economies. A digital economy can go a long way to creating a more equitable society in which all Zambians can live better lives.

On the social dimension, digitalisation of services can increase the scale of access for essential services,

### FOREWORD



such as healthcare provision and education. Recently, the world has faced a major global health crisis, the COVID-19 pandemic, which affected the way we live and disrupted business. The adverse effects of this pandemic were largely neutralised by the existence of digital technologies. However, the benefits of digitalisation can only translate into meaningful development for the Zambian people if digital products and services lead to an increase in value and wealth creation among the populace. Therefore, the recommendations in this report will need to be actualised with a view to delivering on these aspirations.

This report is an essential tool that will shape government policy and strategies towards transforming Zambia into a digital economy. Therefore, I would like to urge all state and non-state actors to take interest in the key findings and recommendations outlined in the report to devise strategies and programmes that could accelerate the transformation process. The government will continue to explore opportunities to collaborate with various stakeholders who can assist with actualizing some of the initiatives proposed in the report.

Hon. Felix C. Mutati (MP) MINISTER OF TECHNOLOGY AND SCIENCE

### ACKNOWLEDGEMENTS

he Ministry of Technology and Science is committed to providing a conducive policy and legal environment for transforming Zambia into a digital economy. As part of its efforts to achieve this, the Ministry has begun the process of reviewing the National Information Communication and Technology (ICT) Policy and will subsequently formulate a National Digital Transformation Strategy to actualise some of the aspirations of the policy. As a key prerequisite to the formulation of the policy and strategy, this Inclusive Digital Economy Status Report has been prepared through extensive deliberation and consultation. The report highlights the current status of the country's digital inclusiveness and reveals the existing opportunities and persistent challenges observed in the past decade. It is expected to serve as a primary source of input in the formulation of the revised National ICT Policy and the planned National Digital Transformation Strategy.

The report was prepared through an extensive consultative process involving a wide range of stakeholders from both the private and public sector. The Ministry recognises the role played by the United Nations Capital Development Fund (UNCDF) in providing both technical and financial support to facilitate the development of the report. In particular, the conventional situational analysis review process employed by the Ministry was enhanced by incorporating the Inclusive Digital Economy Scorecard (IDES), a quantitative approach developed by UNCDF. The UNCDF report titled "Leaving No One Behind in The Digital Era" also served as a key resource in the preparation of this report.

The Ministry further recognises the role of the World Bank by acknowledging the use of the Digital Economy Diagnostic Report for Zambia titled "Accelerating Digital Transformation in Zambia" as one of the key reference documents during the preparation of this report. The report also extensively relied on the technology entrepreneurship ecosystem mapping undertaken by the International Trade Centre to understand the state of digital entrepreneurship and innovation in the country.

Further recognition is given to the role played by the government line ministries, departments and agencies, providers of various telecommunication services, regulatory institutions, the private sector and the civil society. Among the notable institutions included Airtel, Zamtel, Financial Sector Deepening Zambia (FSDZ), Zambia Statistics Agency (ZamStats), Smart Zambia Institute, Zambia Information and Communications Technology Authority (ZICTA), Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA), Japan International Cooperation Agency (JICA), Information Communication Technology Association of Zambia (ICTAZ), Food and Agriculture Organization (FAO), and Bank of Zambia.



The Ministry further acknowledges the guidance and support provided by the Policy Analysis and Coordination Division (PAC), Cabinet Office, as well as other stakeholders. The Ministry remains committed to engaging all stakeholders during subsequent policy processes.



Dr. Brilliant Habeenzu Permanent Secretary MINISTRY OF TECHNOLOGY AND SCIENCE

### **Acronyms And Abbreviations**

AI – Artificial Intelligence
BOZ – Bank of Zambia
B2B – Business to Business
<b>CCPC</b> – Competition and Consumer Protection Commission
ECZ – Examinations Council of Zambia
FISP – Farmer Input Support Programme
ICT – Information and Communication Technologies
ITC – International Trade Centre
IDES – Inclusive Digital Economy Scorecard
MSME – Micro, Small, and Medium Enterprises
MTS – Ministry of Technology and Science
TEVETA – Technical Education, Vocational, and Entrepreneurship Training Auth
UNCDF- United Nations Capital Development Fund
SEC – Securities and Exchange Commission
<b>SZI</b> – Smart Zambia Institute
<b>ZICTA</b> – Zambia Information and Communications Technology Authority
<b>7NDP</b> – 7th National Development Plan
8NDP – 8th National Development Plan

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### Background

igital technologies have been and continue to be a key part of Zambia's development agenda. This is evidenced by the continued inclusion of information communication technologies (ICTs) in national and sectoral development plans, governing policies, and strategies. The Vision 2030 sets the overall agenda of transforming Zambia into a 'prosperous middle-income country by the year 2030. ' Zambia's transformation is laid out in more detail in Zambia's five-year development plans. The most recent of these plans is the Seventh National Development Plan (7NDP), which has the overall goal of "accelerating development efforts towards Vision 2030 without leaving anyone behind." The enhancement of ICTs in Zambia is one of the ten development outcomes outlined in the first pillar of the 7NDP, with underlying strategies including:

- ) Strengthening the legal framework of information and communication technology;
- ii) Improving ICT infrastructure for service delivery;
- iii) Provision of electronic services.

In addition to being singled out as a key driver of Zambia's development, digital technology has a role to play in achieving related development outcomes such as:

- (i) Improving production and productivity in the agricultural sector;
- (ii) Improving electricity access to rural and peri-urban areas;
- (iii) Promoting entrepreneurship skills training and development;
- (iv) Strengthening social protection systems; and
- (v) Enhancing access to quality, equitable and inclusive education and healthcare, among others.

Although the Eighth National Development Plan (8NDP) is yet to be launched, technology remains a critical goal and overall enabler to realising Zambia's inclusive growth and development. The upcoming 8NDP is centred on four key focus areas:

- (i) Economic transformation and job creation;
- (ii) Human and social development;
- (iii) Environmental sustainability; and
- (iv) Good governance.

The first two pillars make mention of leveraging ICTs to achieve their goals; ranging from increased private sector participation by promoting ICT-based enterprises and innovations, to the modernization and automation of processes in sectors such as transportation, energy and agriculture.

Against this backdrop, a call for digitization and the use of ICTs is not new. There has, however, been a need for a deliberate, organized and strategic approach to leveraging digital technology, with the goal of achieving inclusive social and economic development. Around the globe, IT is advancing at a breath-taking pace, with nations and businesses seeking to maximize the use of digital technology and its potential to improve how citizens access services, conduct business, and achieve development outcomes. This advancement has led to coining the term 'digital transformation,' which refers to the integration of digital technology into businesses and economies, resulting in improved efficiency, value, innovation and service delivery, among other end goals. The digital transformation process not only identifies the ICT sector's potentially significant contribution to job creation and economic development, but also outlines a strategic approach to leveraging the sector to ensure all demographics and population segments are included. Initial studies show that countries and businesses that have adopted a digital transformation strategy have experienced both growth and economic development.

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IN RELISTRATION



ambia currently has one of the continent's youngest populations, with 48 percent of the population being within the 0-14 years age range and only 3 percent of the population being above the age of 65 years . The youth are evidenced to be early adopters of digital technologies, and this provides both an opportunity and an incentive to integrate digital technology further into the country's economy by all available means. Doing this ranges from leveraging digital technologies for improved service delivery to streamlining ICT into all stages of the education curriculum.

Establishing the Ministry of Technology and Science (MTS) is a

decisive move towards driving Zambia's digital transformation, and builds on previous government efforts involving digitisation and ICTs. It builds on efforts such as the digitisation of government initiatives and services spearheaded by the Smart Zambia Institute (SZI), and the various other initiatives within various ministries. These include electronic management systems within the Ministry of Health, and the digital delivery mechanism (evoucher) for the Farmer Input Support Programme, for example. Developing an overarching digital transformation strategy will streamline these existing efforts while establishing a concerted and comprehensive approach with a shared common goal.

The financial sector, in particular, has made impressive strides towards streamlining digital technologies to increase accessibility and usage of financial products and services. Examples of this include the policies to enable non-bank e-money issuance, the growth of Zambia's fintech community and diversification of digital financial services from payments to credit and insurance. UN Capital Development Fund's (UNCDF) 2019 State of the Digital Financial Services Industry Reports reveal an increase in both ownership and active use of digital financial solutions, from approximately 4.3 million subscriptions in 2018 to over 6.5 million subscriptions in 2019. If appropriately integrated

into other sectors, the progress made in driving access through digital financial services has the potential to yield dividends through increased access to critical products and services for all population segments.

The 2020 Zambia Digital Economy Diagnostic released by the World Bank found that Zambia has a strong foundation for the use of digital tools to achieve the social and economic transformation goals set out in the Vision 2030. In particular, the report commends the expansion of mobile network access across Zambia and the progress made in digitizing government services under the SZI. Additionally, the report highlights the need for continued private-public partnership and the creation of a more agile and predictable environment for digital innovators to drive progress in Zambia's digital transformation. These are all elements that will need to be incorporated in the development of Zambia's digital transformation strategy, the first step of which is the situational analysis detailed in this report.

### **Situational Analysis Approach and Tools**

n order to gauge the state of Zambia's digital economy, the Ministry of Technology and Science, in partnership with UNCDF and identified stakeholders from multiple sectors critical to the digital transformation process, conducted a three-day situational analysis exercise. The workshop was held from 7-10 December, and saw stakeholders make use of three distinctive tools that shed light on the status of the digital economy, key enablers, inhibitors, challenges, opportunities and priorities with regards to the digital transformation process. In summary, the data collection exercise sought to achieve the following through the respective tools used:

- **SWOT Analysis:** Identify internal factors that will impact the digital transformation process, by evaluating strengths, weaknesses, opportunities and threats;
- **PESTEL Analysis:** Identify external factors to be considered in the strategy's drafting, such as enablers and inhibitors to the digital transformation process present in the political, economic, social, technological, environmental, and legal environments;
- **Inclusive Digital Economy Scorecard (IDES):** Arrive at the overall Inclusive Digital Economy Score for Zambia, identifying the digital divide and priority areas to support the digital transformation process.

Below is complete list of stakeholders present at the work sessions and who provided input to arrive at the situational analysis report:

- Airtel Zambia
- Bank of Zambia
- Bankers Association of Zambia
- Cabinet Office Gender Division
- Cabinet Office Policy Analysis and Coordination Division
- Financial Sector Deepening Zambia
- Infratel
- ICT Association of Zambia
- Japan International Cooperation Agency
- Ministry of Agriculture
- Ministry of Energy
- Ministry of Finance and National Planning
- Ministry of Local Government
- Ministry of Small and Medium Enterprise
- Ministry of Transport and Logistics

- National Technology Business Centre
- Payments Association of Zambia
- Pensions and Insurance Authority
- Securities and Exchange Commission
- Smart Zambia Institute
- Technical Education, Vocational and Entrepreneurship Training Authority
- UN Food and Agricultural Organization
- Zambia Information and Communication Technology College
- Zambia Information and Communications Technology Authority
- Zambia Institute for Policy Analysis and Research
- Zampost
- Zamtel

# The Inclusive Digital Economy Scorecard

he Inclusive Digital Economy Scorecard is a strategic performance and policy tool that has been developed to support countries set the priorities for their country's digital transformation. It identifies the key market constraints hindering the development of an inclusive digital economy and helps set the right priorities with public and private stakeholders to foster a digital economy that leaves no one behind. The IDES provides scores for the development of a digital economy based on several indicators for its main components:

- Policy and regulation;
- Infrastructure;
- Innovation; and
- Skills.

It also provides scores for the inclusiveness of the digital economy for underserved segments, who are the rural population, women, youth, MSMEs, refugees, the elderly, and people with disabilities. Inclusivity and the divide in the digital economy is primarily measured through a qualitative assessment of efforts made by the public and the private sector to include specific segments in the expansion of the digital economy.

The IDES is a tool to identify key focus areas for the building of an inclusive digital economy, and enables governments to set both quantitative and qualitative targets and track progress in the development of a nation's digital economy. While the IDES is a global policy tool, it calls for locally relevant and a pragmatic approach in its implementation. Populating and implementing the IDES tool involves incorporating high quality local data sources in consultation with a wide group of public and private sector stakeholders.

The IDES takes into consideration four building blocks relevant to the development of a digital economy:



In the **Policy and Regulation** block, the scorecard captures the extent to which the government actively promotes the development of an inclusive digital economy, along with the policies and regulations in place that support digital finance and the digital economy.

In the **Innovation** block, the scorecard quantifies the status of the country's innovation ecosystem. Key elements are the level of development and the synergies within the innovation community, the level of skills in the ecosystem, the presence of supporting infrastructure, and the availability of financing for innovation.





In the **Infrastructure** block, the scorecard quantifies the level of development of the digital infrastructure (e.g. ID infrastructure, access to electricity, phone ownership, and network coverage), the status of the digital payment ecosystem, including the level of interoperability, and the openness of the digital infrastructure for third-party players.

In the **Skills** block, the scorecard tracks the active population of the public and private sectors in digital and financial skills development and usage of digital channels for skills development.





In addition to the four focus areas detailed above within the IDES toolkit, the workshop also conducted a deep dive into digital services and digital platforms specifically to pick out any additional priorities, challenges, opportunities and market constraints that may exist for those specific workstreams. This report is a compilation of the comprehensive knowledge of the local

Zambian economy

according to the

Figure 1: Foundations of the Inclusive Digital Economy Scorecard

stakeholders represented at the workshop. The analyses presented in this report were <u>arrived at by utilising the IDES, SWOT and PESTEL</u> tools.

From this overall assessment, comes a snapshot of the current state of Zambia's digital economy, with key intervention area identified for building an inclusive digital economy in Zambia.

# Overview of the digital economy in Zambia and its inclusiveness



Zambia's overall digital economy score stands at 45 percent. This score places the country at the top end of start-up phase near the limit for transition into the expansion phase. The score is reflective of the emphasis the Zambian government places on advancing digital inclusion, particularly in the financial sector and focusing on the development and advancement of ICTs in national development policies such as the Vision 2030 and the 7NDP. These documents form the bedrock upon which various government ministries and agencies have piloted and implemented many efforts that drive the digital transformation agenda forward. National policies provide a platform for a multi-sectoral approach to digital solutions and initiatives that improve access to products and services with the end goal of improving the livelihoods of Zambian citizens.

Inception		Start-up	Expansio	n	Consolidation
0%	25%	ļ	50%	75%	100%

Figure 3: Phases of an inclusive digital economy

Zambia's efforts in growing the digital economy have, so far, relied mainly on increased public-private cooperation, enabling policy and regulation, digitizing government operations and services, and building digital financial infrastructure. Examples of these efforts include various pilots to digitize payments for the National Social Cash Transfer program, identifying ICT as a key pillar in the 7NDP, implementation of a National Financial Switch to enhance interoperability within the financial sector, and the Bank of Zambia's goal to achieve a cashless society by 2030. These efforts have laid the necessary foundation for the building of a digital economy that incorporates the needs of all marginalised segments.

As laid out in the 7NDP, inclusive development is a top priority for the Zambian government, ensuring that no one is left behind as the country makes progress towards becoming a prosperous middle-income nation. Although the 7NDP didn't explicitly highlight building a digital economy as a priority, the development and advancement of ICTs is mentioned. While there is still a lot of work to be done in building Zambia's digital economy, especially in enhancing the digital infrastructure to enable effective last-mile delivery, (e.g. cell towers for increased rural connectivity and a profitable rural agent network) Zambia is primed to begin channelling efforts towards utilising the existing digital infrastructure for increased inclusion. From piloting mobile health clinics to ensuring equitable access to e-Education platforms, each sector has significant work to do to ensure equitable and sustainable access to critical products and services for all citizens. A National Digital Transformation Strategy provides an opportunity to streamline the development of an inclusive digital economy in the national agenda and drive digital transformation in crucial sectors such as agriculture, health, education, energy, and commerce. Such a strategy can also provide actionable solutions to the gaps highlighted by the ongoing Covid-19 pandemic, where economies worldwide have faced challenges in ensuring adequate service delivery amidst social distancing guidelines.

As seen in the breakdown of the IDES score above, Zambia scores relatively high on Policy and Regulation, owing to a number of government ministries and agencies that have individual efforts to promote the digital economy, and several policy initiatives such as tiered KYC, nonbank e-money issuance, and an overarching regulatory framework to enforce cybersecurity. The score of 59 percent on policy and regulation indicates that while there is still work to be done on the area, many foundational elements of the current policy and regulatory environment cater well to drive digital transformation. Where digital infrastructure is concerned, Zambia scores 48 percent, indicating that while some advancement has been made, the country's digital infrastructure needs further development to enable increased access and inclusion. This is

especially true for specific segments such as the rural population, where 55 percent of Zambia's population currently resides.

Zambia's innovation ecosystem has seen growth and development over the last two to three years, with the emergence and growth of innovation hubs, incubation programs, fintechs and other digitally-enabled start-ups. This growth is represented in Zambia's score of 34 percent. The score is reflective of the presence of technology and entrepreneurship support for start-ups in the digital economy, but also indicates the need for increased growth and diversification in the innovation ecosystem. For example, while there has been an increase in the number of fintechs in Zambia's financial ecosystem, the majority of these are still concentrated in digital payments with limited open

> APIs and have yet to spread out to other sectors such as health, education, transportation and agriculture.

> In the same vein, the Skills score of 41 percent reveals the presence of some elements of digital transformation, such as the inclusion of ICT education in primary school curricula to the introduction of digital learning platforms by the Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) and the Examinations Council of Zambia (ECZ). However, there are strides to be made in ensuring universal internet access - especially in remote areas - and providing adequate digital platforms to enable all schools to support the ICT education curriculum.



Figure 4: Breakdown of Zambia's IDES score



Figure 5: Digital inclusiveness by segment in Zambia

Zambia's Digital Inclusiveness Score is 53 percent, which indicates that 47 percent of Zambia's overall population does not participate in the digital economy. The score is broken down further to indicate the segments of the rural population, women, youth, the elderly, refugees, migrants, the disables, and MSMEs that do participate in the digital economy. Overall, women, youth and MSMEs have a score of greater than 50 percent, with women's inclusion being the highest at 66 percent. Zambia's digital divide - the 47 percent of the population who do not participate in the digital economy - can be surmounted by developing strategies and initiatives that build upon the progress made thus far in achieving inclusion among key segments such as the rural population, youth and MSMEs. For example, increasing access to finance for MSMEs was one of the core goals of the National Financial Inclusion Strategy, which is still being implemented. The digital divide of 45 percent among MSMEs shows that there is still room to increase the role that technology can play here and the progress made in extending digital financial products to MSMEs, to build a digital ecosystem that links MSMEs to additional products, services, and sectors. For MSMEs, digital inclusion represents an opportunity to increase visibility, efficiency, and be connected to other market players who can provide critical services, such as access to finance and trade markets.



### A focus on the key components and subcomponents of Zambia's digital economy

### **Policy & Regulation**



Figure 6: Policy and regulation breakdown

s outlined in the introductory section of this report, Zambia's overarching policy and regulatory framework provides a strong foundation for establishing an enabling environment to build an inclusive digital economy. Key institutions such as the Ministry of Technology and Science, the Ministry of Finance and National Planning, the Zambia Information and Communications Technology Authority, the Bank of Zambia, and the Smart Zambia Institute work to actively promote various elements of the digital economy. The different initiatives under each of these agencies contribute to Zambia's relatively high score on policy and regulation. At the highest level, the Government of Zambia is committed to advancing the nation with a focus on ICT as both a target (strengthening ICTs) and an enabler (leveraging ICT to drive transformation and inclusion in other sectors) in the 7NDP. Government has evidenced this commitment by establishing institutions such as the Smart Zambia Institute, and more recently, the Ministry of Technology and Science (MTS). The SZI has the mandate of leading the charge on digitizing government processes and services, enabling easier access, accountability, and last mile

delivery. The MTS, on the other hand, bears the mandate of streamlining digital technologies into the Zambian economy as a whole, driving the digital transformation agenda forward, while ensuring that all citizens have equitable access and representation.

In the financial sector, policy makers and regulators have implemented various instruments that have seen Zambia progress towards a digital economy. For instance, Bank of Zambia's 'watchand-learn' approach towards mobile money in the early 2000s led to the official gazetting of nonbank e-money issuance in 2007, an Act which is currently under revision to encompass emerging technologies and processes. Additionally, the Bank of Zambia and the Securities and Exchange Commission openly encourage innovative and new approaches to traditional financial products and services. In 2021, both regulators piloted regulatory sandboxes with the aim of providing an environment where innovators with ideas that did not fall within existing regulations or meet existing requirements, test their products and services on the open market.

The chief regulator of the ICT

sector, the Zambia Information and Communications Technology Authority (ZICTA), and the apex policy maker for the sector, the Ministry of Transport and Communications developed and launched several much-needed regulatory and policy instruments. In view of the increasing complexities facing customer protection in the digital sphere, the Government of Zambia developed the Cyber Security and Cyber Crimes Act. This Act details processes and procedures to be put in place to ensure online security, and punitive measures in cases where security is breached. The Government of Zambia also released the Data Protection Act, which has the aim of providing an effective system for the collection, use, transmission, storage and processing of personal data, all the while ensuring its protection. The Act details parties responsible, acceptable procedures and reasonable expectations concerning the protection of personal data. While both the Cyber Crimes and Cyber Security Act and the Data Protection Act lay an adequate foundation for online security and customer confidence, the legislative and regulatory framework to support the implementation of both policies is still in development.

The above-mentioned examples lay significant groundwork for the development of a more inclusive digital economy. To this effect, the National Digital Transformation Strategy must build on the efforts of existing digitally focused policy and institutional initiatives and action plans. The 7NDP and upcoming 8NDP provide a unique opportunity to elevate and streamline the digital transformation agenda, allowing all government agencies with a role to pay in the digital transformation process to make a meaningful contribution within their respective sectors. While the aforementioned establishes a strong foundation as previously mentioned, there are still opportunities to enhance the implementation framework of the identified policies, and improve the coordination mechanisms of the same. In particular, the situational analysis revealed the below priorities in relation to policy and regulation.

#### i) Security and Integrity

a. A comprehensive and collaborative customer protection framework with stern measures and guidelines on how to address customer issues;

b. Development of systems and infrastructure to enhance cybersecurity and limit fraud and other digitally-enabled crimes;

c. Clear communication of guidelines to the customer on how to speedily resolve their issues, e.g. all complaints of a digital finance nature are reported to the customer protection focal points at BOZ, while Consumer Competition and Protection Commission (CCPC), ZICTA and the Police collaborate on the back end;

d. Enacting legal frameworks under recently-developed policies e.g. the Cyber Security and Cyber Crimes Act (2021) and the Data Protection Act (2021).

#### ii) Policy Development and Regulatory Harmonisation

a. Promote a forum where external stakeholders can collaborate (public-private dialogue) to further assess policy and regulatory-level constraints to the development of an inclusive digital ecosystem.

b. Formulate a multi-sectoral and multi-ministerial policy to provide guidance and agree on a common vision for leveraging digital opportunities and driving the digital transformation agenda.

c. Updating policies to cater for new and evolving technologies,

e.g. blockchain.

d. Strengthen the collaborative framework between regulators, specifically addressing the issue of duplication of roles and harmonising regulation.

e. Developing a change management framework to support the digital transformation process across line ministries and other government agencies.

f. Make available and incentivise the use of digital IDs to access goods and services.

iii) Innovation & Development a. Establish innovation hubs and support existing ones to develop Zambia's ICT entrepreneurial capacity with adequate government financing (in partnership with private sector). Additionally ensure that hubs are spread across all regions of the

b. Revise and fully fund the education curriculum to develop digital skills.

country.

c. Develop strong linkages between government, industry, and academic facilities to facilitate the certification of industry-ready graduates.

d. Develop a framework to facilitate coordination among existing hubs and other participants within the ecosystem, e.g. tech fairs to showcase the work of different hubs and their beneficiaries.

e. Facilitate a concerted, collaborative national system of innovation - a coordinated effort to support and fund local innovators.

f. Support the development of initiatives that target high-growth potential digitally-enabled MSMEs.

#### iv) Customer Awareness and Capabilities

Enhance efforts towards improving customer awareness regarding the use of technology and: i. Benefits of digital technologies;

- ii. Risks and mitigation/selfprotection;
- iii. Basic digital literacy, such as understanding USSD codes, internet use, etc.
- b. Establish coordinated efforts on consumer education through the overarching CCPC.
- c. Provide incentives to increase the adoption of digital solutions.

Collectively, Zambia's policy and regulatory environment has all the right ingredients to build a digital economy, such as a strong emphasis on the development of ICTs in high-level national policies and developing critical policy instruments to ensure cyber security and data protection. Further efforts will need to focus on improving the implementation of the policies detailed in this report. Additionally, there is need to harmonise policy frameworks and approaches in cases where mandates are somewhat shared and overlapping, such as in the area of customer protection.



implement a national digital identity system. While there has been progress in the use of mobile telephone services, the use of internet services among people has remained low mainly due to limited access to enabling devices such as smartphones. In order to build an inclusive digital economy, Zambia has to focus on all aspects of digital infrastructure, i.e. digital ID, connectivity (especially in rural areas), ICT ownership and usage, and enabling digital payments. Continuously improving connectivity for citizens in all geographic locations, enabling more citizens to affordably own a mobile phone-more so a smartphone—own a SIM card. easily access digital financial solutions, and start using digital payment services should remain priorities. The situational analysis

### I) Promote Coverage and Active Use

below.

a. Enhance universal network access, especially in rural areas, making use of strategies such as co-location;

exercise also highlighted the needs

- b. Encourage national roaming in the underserved areas;
- c. Enhance efficiency in the management of the national power grid and encourage supplementing with alternative power sources, such as renewable energy;
- d. Reduce taxes or/and develop enabling tax policies on the ICT sector and ICT infrastructure;
- e. Reduce over-the-counter (OTC) operating costs to promote investment;
- f. Enhance collaboration with local authorities and ICT regulators to boost local participation and active use;
- g. Develop a universal access fund for postal services;
- h. Develop a national digital ID and promote its adoption by both the public and private sector;
- i. Drive efforts towards achieving

### Figure 7: Digital infrastructure breakdown

ambia has made notable progress in the deployment of digital infrastructure across the country through both public and private sector investments, which has improved access to technologies such as backbone fibre network covering all the provinces of the country and GSM towers that currently provide coverage to 92 percent of the population. These developments have also led to improvements in the resilience and reliability of networks, as well as modest improvements in quality of experience when using digital services. In addition, data centres have been established in the country to maximise the opportunities arising from shared digital operations and equipment to store, process, and disseminate data and applications. For instance, the Government established a Tier 3 data centre through the SZI, while some private sector players have established complementary facilities.

As of September 2021, Zambia reported a total of 20.1 million mobile telephone subscriptions, translating into 109 mobile phone subscriptions per 100 individuals, however these figures do not account for multiple phone ownership by individuals, SIM card activity, and overall usage. In fact, the growth in mobile phone subscriptions is driven by multiple subscriptions among individuals and the extensive use of machineto-machine connections such as point-of-sale machines. The latest demand-side survey undertaken by ZICTA revealed that uptake of ICT services among the population is still relatively low. For example, only 14.3 percent of the adult population reported having access to and being able to actively use the internet. Furthermore, only 53.5 percent of the adult population have access to mobile phones with a further 29.6 percent of mobile phone owners having smartphones. There are also a number of disparities in access and usage among groups such as persons living with disabilities, the rural versus urban population and along gender lines.

Gaps remain in Zambia's digital infrastructure, especially in rural areas where the population is often sparsely distributed and the commercial case for investment is not pronounced. In more urban settings, there is duplication of infrastructure, such as fibre networks, which is economically inefficient and could be channelled to other unserved or underserved areas. The existing infrastructure is also not adequate enough to support emerging technologies such as Internet of Things (IoT), nor can it leverage big data. For instance, a majority of the telecommunication sites are still 2G which has limited capabilities and the country is yet to

### Infrastructure



universal electricity access.

#### ii) Promote the Uptake of Digital Platforms

- Accelerate the near-term focus on implementing open and interoperable digital payment systems;
- b. Establish a national biometric system;
- c. Engage operators to incentivise the private sector to increase access, affordability and usage of smartphones and internet, particularly by

marginalised segments of the population;

d. Merchant onboarding to increase the use of digital payment platforms.

In summary, digital infrastructure forms the rails upon which other workstreams can build in developing Zambia's digital economy. Ensuring the foundational items such as digital ID infrastructure, universal electricity access and increased phone ownership are in place will enable all citizens to access services and actively participate in the country's digital economy. Leveraging existing infrastructural elements, such as the agent network built in the financial sector over the last decade, will enable expanded reach and access points for last-mile service delivery. A concerted effort will ensure that digital infrastructure permeates into every core sector of the economy, thus enabling the digitising of services across all sectors.

### Innovation & Entrepreneurship



Figure 8: Innovation and entrepreneurship breakdown

igital entrepreneurship and innovation has great potential to drive job creation, human development, and inclusive growth of Zambia's economy. A few initiatives exist that promote digital innovation and entrepreneurship in the country, including ZICTA's ICT Innovation programme and various initiatives implemented by innovation hubs as well as private sector players. Recent policy developments such as the regulatory sandboxes run by both the Bank of Zambia and the Securities and Exchange Commission have encouraged the emergence of new technologyenabled business models generating revenue and employment. The National Technology and Business Centre (NTBC) has a number of initiatives that aim to support technology development and the

commercialisation of innovations in various sectors of the economy. There are also funds established to support innovation.

Despite these efforts and existing support programmes, there is a limited pool of entrepreneurs focusing on innovations outside the financial sector. There are glaring opportunities to develop innovations that deliver services such as telemedicine, smart agriculture, climate smart solutions, transportation, and eeducation, among others. Additionally, there only a few innovation hubs that focus on digital innovation and entrepreneurship and are concentrated in Lusaka and Copperbelt provinces. There are also limited linkages between industry, academia and skilled innovators. While some funds have

been established to support innovation, they are often fragmented into different agencies and do not target and respond to specific innovations. The entrepreneurship culture is not well-entrenched in Zambia's education curriculum with learners inclined to seeking employment. Existing entrepreneurs also experience challenges accessing affordable, patient and appropriate financing, such as venture capital. The ecosystem to support innovation and entrepreneurship is yet to be fully developed, with existing initiatives mainly focusing on start-ups and limited support for high growth, impact innovations that may be seeking new markets or growth-stage investment.

The innovation score of 34 percent hence highlights a need for more concentrated efforts in driving the innovation and entrepreneurship ecosystem. A recent mapping exercise conducted by the International Trade Centre (ITC) noted that participants in the innovation ecosystem are significantly fragmented resulting in limited coordination in the support of ICT-related innovations and entrepreneurs in the country. This has also resulted in certain areas of support receiving more attention than others thereby limiting the effectiveness of the overall support provided by these initiatives.

Several challenges, such as the

limited infrastructure available to develop and test prototypes, limited access to affordable financing and traditionally high capital requirements for certain activities e.g. insurance provision, continue to retard the development of Zambia's start-up ecosystem. The infrastructure needs may include physical working space but can also extend to access to equipment and devices with the required capacity, access to Application Programme Interfaces (APIs) that would simulate a real environment, short codes, fast and stable internet connectivity and cloud hosting space for applications among other facilities.

In order to advance innovation and tech-entrepreneurship in the country, the government will focus on priorities identified in the situational analysis.

- i) Enhance Available Financing and Commercial Viability
  - Establish monitoring and evaluation system for entrepreneurship revolving funds;
  - Develop mechanisms that will incentivise private sector to support innovation, e.g. tax concessions;
  - c. Upscale the Zambia Development Agency B2B model to encourage the interaction of entrepreneurs;
  - d. Reduce the cost of doing

道例 Skills and Capacity

business through digitally optimised systems;

e. Enhance innovation funds to promote and support innovation within government, private sector, and development partners.

#### Enhance Technology Adoption

ii)

- Promote greater use of technologies in the economy;
- b. Speed up implementation of tech-driven strategies;
- c. Improve adoption of innovative solutions by enabling digital entrepreneurship.

#### iii) Develop Innovative Talent

- a. Establish tech-focused entrepreneurship training and mentorship programmes;
- Review school curricula to be tailored towards the more current needs of the digital economy;
- c. Develop cultural exchange programmes and orientation programmes to facilitate knowledge exchange across demographics and geographies;
- d. Increase the visibility of internship policies within the technology sector to build capacity for innovation and skills development at tertiary level.

#### iv) Ensure Adequate Infrastructure to Support Innovation

- a. Prioritise investment into Research and Development (R&D), technology, and digital infrastructure;
- b. Create information portals that support entrepreneurship.

### v) Develop a policy framework that encourages innovation

- a. Establish a policy direction that encourages innovators to learn through repeated iteration;
- b. Relax regulatory requirements to promote an enabling environment for innovation e.g. regulatory sandboxes;
- c. Establish a central coordinator of public innovation hubs and initiatives.

In summary, there are a wide range of issues that could positively influence innovation, some of which will involve efforts from the other workstreams such as policy and regulation. The main focus for this workstream, however, will be to ensure that Zambia's talent is able to develop and deliver innovative new solutions that drive the country's digital economy forward. This will involve investment in research and development and enable access to patient and affordable capital for promising and scalable solutions.



he skills components score within Zambia stands at 41 percent, indicating that the foundational skills for the building of an inclusive digital economy exist and could be further developed. Within this, basic skills score relatively high at 66 percent, while financial and digital literacy trail behind at 20 percent and 38 percent respectively. Increasing financial literacy is a primary goal of the Ministry of Finance, as embodied in the National Strategy

#### Figure 9: Skills and Capacity Breakdown

on Financial Education , which has the overall objective of seeing that the Zambian population"has improved knowledge, understanding, skills, motivation, and confidence to help them secure positive financial outcomes."

While the government should continue its efforts to increase basic skills and financial literacy, a key priority should be to develop strategies and plans to increase the development of digital skills in the population. This can be achieved through schools, in partnership with the private sector and also by leveraging digital channels for skills development. Increasing basic skills is particularly achievable given Zambia's relatively young population, with a majority of the population being of school-going age. With collaboration between the private sector and the Ministry of General Education, schools can build on the existing strengths to further develop financial education and digital skills within the education curricula.

It is also important to note that Zambia now has a growing critical mass of young people with ICT skills with vested interest in ICT related innovations. However, these young people have limited understanding of entrepreneurship and how to turn their innovations or ideas into viable commercial ventures. Further, the curricula at many higher learning institutions are usually aligned to strengthening technical skills in software development and coding, to an extent, but have not been aligned to improving entrepreneurship culture amongst learners. The curricula need further development to incorporate emerging and growing trends such as blockchain, artificial intelligence, and machine learning. At primary and secondary school levels, there are efforts to introduce training in coding, while some out-of-school initiatives for young people may focus on young people developing interest in robotics. A related challenge to the education system especially in higher learning institutions is that

most of the ICT-related initiatives, developed as part of the final year projects are also not fully developed to commercialisation but are left as mere concept documentation. There are also limited linkages between the existing critical mass of software developers and the expected target industries. Due to this, the developers are not adequately equipped to respond to specific industry needs and challenges in the country as these gaps are not clearly identified and welldisseminated. Strengthening linkages between industry and academia at all levels will go a long way to closing this gap. Essentially, the situational analysis identified priorities based on the above mentioned gaps and challenges.

- i) Ensure adequate ICT infrastructure and equipment in schools:
  - a. Ensure all schools have adequate ICT equipment and software;
  - Put in place policy guidelines to ensure private schools have adequate ICT equipment, systems and software.
- ii) Fill the human resource gap in ICT:
  - a. Ensure schools have staff sufficiently trained in the application of ICT across different sectors;
  - b. Train more data scientists and AI experts.

 iii) Ensure digital learning programs in schools also cater for persons with disabilities and children in rural areas.

iv) Conduct surveys on digital skills to gain up-to-date data.

v) Facilitate the enactment of an ICT statutory instrument to enable the regulation of ICT practitioners.

vi) Increase connectivity in remote areas:

a. Increase the number of towers across the country, especially in rural areas;

b. Upgrade nationwide system from 2G to 4G internet.

vii) Engage service providers to provide affordable internet to the less privileged.

viii)Extend existing financial literacy programmes to other parts of the country.

ix) Prevent the abuse of digital platforms:

- a. Enforce cyber security laws:
- b. Create awareness on cybercrimes and other digitally-enabled crimes.

x) Take a coordinated approach and define the role of SIZ and other players in the sector.

Some components of Zambia's skills base are strong, as evidenced by the relatively high score on basic skills. However, it is necessary to concentrate efforts on increasing both financial and digital literacy components. Additionally, filling the human resource gap in the ICT sector must be a major focus, while simultaneously ensuring that the developed talent meets the very specific industry needs and standards.

# Digital Platforms & Services

n analysis of the state of digital platforms and services revealed a number of challenges and constraints to their development, but also revealed a number of opportunities related to the same. One of the main challenges arising from streamlining digital platforms and services is the fragmented nature of Zambia's digital ecosystem. There are efforts to leverage digital platforms and services, from the evoucher for payment of farmer inputs under the FISP programme to telehealth start-ups providing digital healthcare services. however, there is a lack of a unified agenda related to increased access through digital platforms and services. Despite this challenge, there is progress from which Zambia can build the digital economy, especially with regards to provision of digital financial services, primarily through digital wallets and mobile money.

The increase in phone ownership, even in the most remote areas, has enabled mobile money to reach remote areas and drive financial inclusion. Though the agent network is lagging behind in terms of rural reach, this first step provides an opportunity to bring more individuals into the digital economy with digital financial services as the first touchpoint. Additionally, youth have been proven to be early adopters of digitally-enabled services. This makes the case for driving adoption of digital technologies much easier in the Zambian context given the country's youthful population. There are other priority areas with regards to digital platforms and services that have been identified.

#### i) Establishing a more integrated and truly interoperable digital ecosystem

- a. Encourage the adoption of open APIs amongst digital financial service providers to enable seamless payments across wallets and various provider platforms;
- Encourage the adoption of a shared agent network by abolishing barriers to agents looking to provide multiple services e.g. locked float management accounts;
- c. Accelerate efforts under the National Financial Switch by addressing bottleneck and barriers to ensure all providers are equitably able to participate.

#### ii) Strengthen business case for digital services

- a. Expand the merchant and agent network to enable more people to access products and services through digital platforms;
- b. Provide incentives to increase the uptake and adoption of digital channels, e.g. reducing

costs on goods and services paid for digitally;

c. Build a digital ecosystem that enables individuals to access more services through digital financial service platforms, e.g. enable insurance sign-up through mobile money platforms.

#### iii) Improve the Digital Experience

- a. Improve access to digital platforms and services through enabling more citizens to own smartphones and computers;
- b. Drive digital payments for government services, thus onboarding more individuals into the digital ecosystem;
- c. Improve regulatory enforcement to incentivise providers to improve their quality of service across the board.

#### iv) Empower Digital Customers

- a. Enact cyber security legal framework to enable effective prosecution of fraud and other digitally enabled crimes;
- Enhance customer trust in digital channel by ensuring effective enforcement of customer protection mechanisms and standards of practice;
- c. Develop effective means of disposing of electronic waste from used or old devices.

# CONCLUSION

cross the five assessed components of the digital economy, Zambia fairs relatively well on Policy and Regulation, but less so on other components such as Skills and Infrastructure. The current state of Zambia's digital economy provides ample background for Zambia to not only focus on creating an enabling environment through policy and regulation, but also provide catalytic support to the other workstreams, such as ensuring adequate access to ICT infrastructure across population demographics and geographic locations.

For Zambia, focusing on strengthening policy implementation and regulatory collaboration, while simultaneously increasing focus on having adequate infrastructure, investment in innovation, and development of digitally empowered citizens will be crucial to building an inclusive digital economy. Focusing on segments such as youth, women and the rural population will expand the digital economy, while ensuring that the elderly, persons living with disabilities and migrant populations are also not left behind.

Some high-level recommendations coming out of this report include:

- Increasing coordination and collaboration across sectors with regards to the adoption and use of digital technologies for the provision of both public and private services;
- Increasing regulatory and policy collaboration to limit regulatory overlap and provide a coordinated mechanism for monitoring development within the ICT sectors and their application across other sectors including, but not limited to, health, education, and agriculture;
- Invest in increasing skills and capabilities within the population to enable the effective uptake of digital solutions across all relevant sectors;
- Build a coordinated, integrated and interoperable digital ecosystem that connects citizens across sectors and functions;
- Work closely with the private sector to enhance innovative and affordable financing for the technology sector, and tech-enabled solutions in other sectors;
- Establish and enable the implementation of a digital ID, with easily accessible use cases across all demographics.







### LEAVING NO ONE BEHIND IN THE DIGITAL ERA

The UNCDF strategy 'Leaving no one behind in the digital era' is based on over a decade of experience in digital financial inclusion in Africa, Asia, and the Pacific. UNCDF leverages digital finance in support of the Sustainable Development Goals (SDGs) to achieve the vision of promoting digital economies that leave no one behind. The goal of UNCDF is to empower millions of people by 2024 to use services daily that leverage innovation and technology and contribute to the SDGs. To achieve this vision, UNCDF uses a market development approach and continuously seeks to address underlying market dysfunctions that exclude people living in the last mile.

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