PUBLICFIRST

THE DIGITAL OPPORTUNITY

of Nigeria

THE DIGITAL OPPORTUNITY

of Nigeria

PUBLICFIRST

Public First is an independent consultancy that works to help companies and organisations develop new policy proposals, better understand public opinion, and model their economic and social impact. Public First is a member of the Market Research Society.

T: +44 (0) 2036 872 761
E: info@publicfirst.co.uk
www.publicfirst.co.uk

CONTENTS

EXECUTIVE SUMMARY

Digital technologies in Nigeria are spearheading its growth and development. New estimates by Public First find that every $1 invested in digital technology adds a remarkable $8 to the Nigerian economy, with particular opportunities when it comes to connectivity, cloud computing and artificial intelligence.

In a country where as many as 2 in 5 live below the poverty line, digital solutions promise reduced financial, geographical and gender inequalities.[1] It is therefore vital that everyone is given the opportunity to harness the benefits of technology and improved standards of living.

That is why Google made a landmark $1 billion investment in Africa's digital economy in 2021, and continues to make contributions through its initiatives and product innovations. This includes the commitment to internet connectivity, access and affordability through Google's Equiano subsea fibre-optic cable which landed in Lagos in late 2022.

To understand the scale of the opportunity, Google commissioned Public First to explore:

Google's Impact in Nigeria

Including the economic and social impact of Google's products and services on individuals, workers, and businesses.

Nigeria's Digital Transformation

With an emphasis on the importance of investment in connectivity, cloud computing and artificial intelligence.

Our findings show that, with strategic interventions and supportive policies, Nigeria can leverage its unique culture, and young, entrepreneurial population to further accelerate its front-runner status on the continent and, indeed, the world.

1 Nigeria National Survey 2018/2019

IN NUMBERS

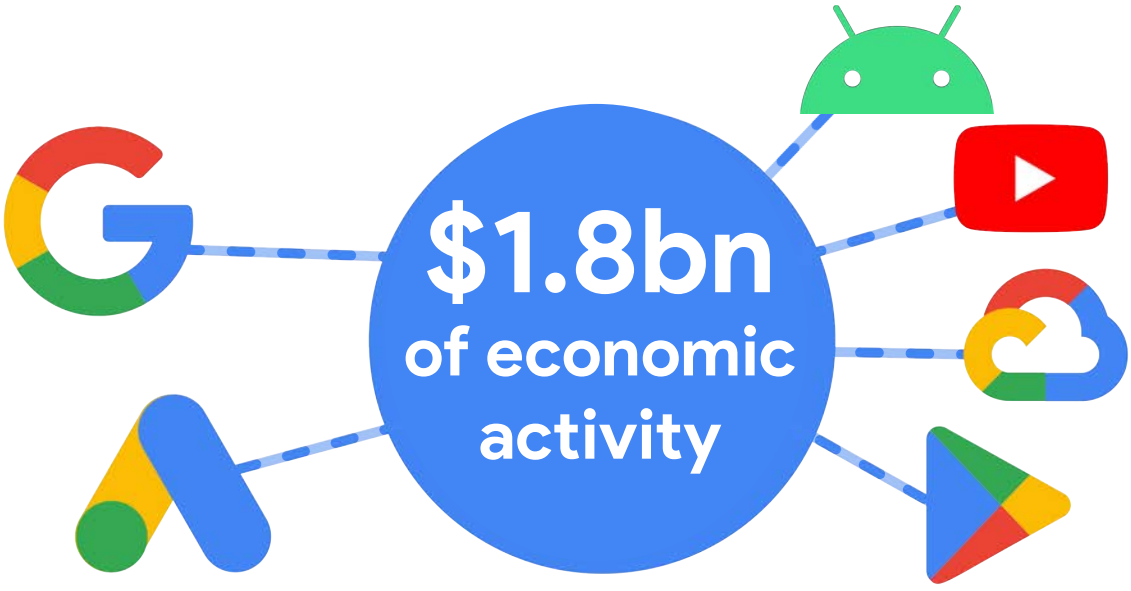
Technology has the potential to deliver significant economic prosperity to Nigeria.

x8

We estimate every **$1** invested in technology creates on average over **$8** for the country's wider economy.

$1bn

In 2021, Google announced **$1 billion** of investment in Africa to support a range of priorities, from improved connectivity to investment in startups over a five year period.



Google Search, Google Play, Android, YouTube, Google Cloud and Google Advertising helped provide an estimated **$1.8 billion** of economic activity for businesses, nonprofits, publishers, creators and developers across Nigeria in 2023.

Google also supports the day-to-day lives of individuals, communities & businesses.

Online adults in Nigeria identified Google Search as the most helpful innovation of the last few decades.[2]

An estimated

1.5mn

young adults in Nigeria have learned a new digital skill through Google Search in 2023, creating a

$467mn

improvement in productivity.

Google Search and Google Workspace help knowledge workers save over **22 million** hours a week, equivalent to a **$4.7 billion** improvement in productivity.

9 in 10 YouTube Creators agree that YouTube has given them a platform to share their creativity and culture with others - whilst also monetising their content.

2 Respondents ranked Google Search as the most helpful innovation, followed by mobile phones, internet browsers, Google Workspace, mobile banking and/or payment apps, the World Wide Wide, WhatsApp, YouTube, Wi-Fi and Google Maps.

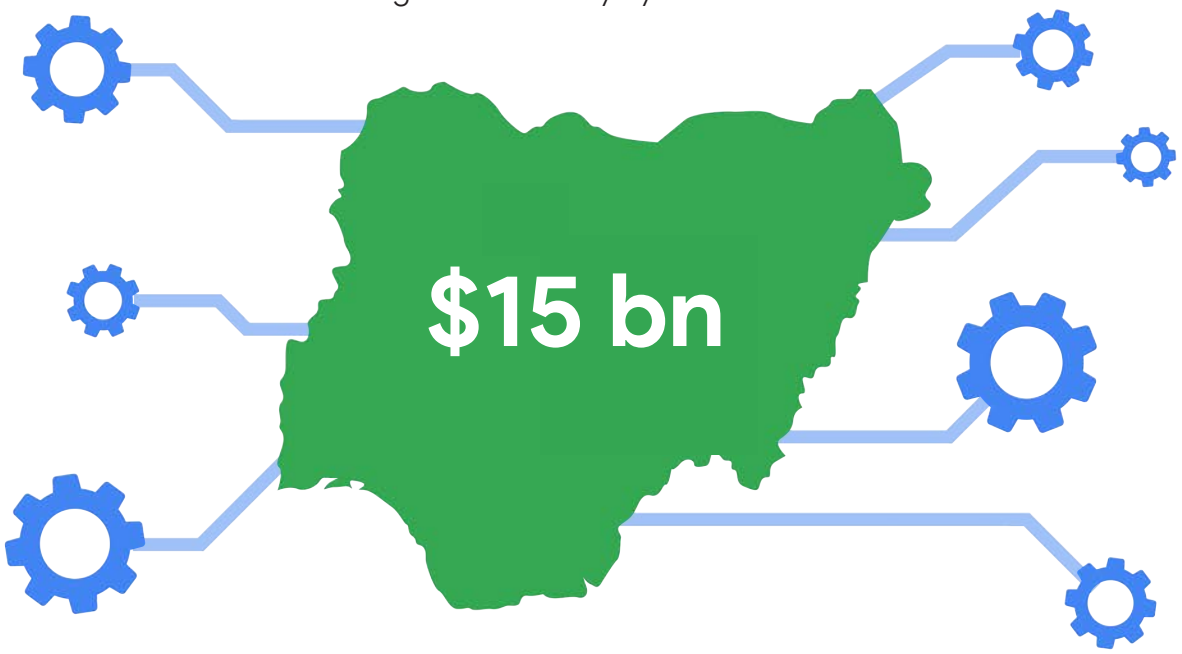
This all contributes to Nigeria's digital potential.

5.7%

Using Public First's internet connectivity index, we estimate that a 1% increase in connectivity is associated with a 5.7% increase in GDP.[3]

A majority of Nigerians access the internet through a mobile device powered by Android.

Artificial Intelligence could increase Nigeria's economy by an estimated



3 This index takes into account the population's access to fixed and mobile broadband, its relative affordability and overall data consumption.

FOREWORD

In 2021, Google committed to invest **$1 billion** in Africa to support the continent's digital transformation. Our initiatives have focused on enabling fast, affordable internet access for more Africans, building helpful products; supporting entrepreneurship and small business, and helping nonprofits to improve lives across Africa.

Three years on, we have made significant investments in the region and will deliver our commitments by 2026. We commissioned this independent report by Public First to contextualise the scale of opportunity in Africa, and to evaluate the impact of Google's innovations across the region.

This research has underscored the value that digital transformation brings to Nigeria. Public First found that every **$1** invested in digital technology in the country will generate over **$8** in economic value in the country by 2030.

In 2022, Google's Equiano fibre-optic cable landed in Nigeria, connecting western Africa to Europe. With around 20 times more network capacity than the last cable built to serve the region, Equiano is projected to bring an internet penetration increase of 7% in Nigeria by 2025, making internet access faster, more reliable, and more affordable.

Alongside our direct investments, Public First estimates that Google's tools and services grew Nigeria's economy by an estimated **$1.8 billion** in 2023. The stories in this report reflect the profound ways it can improve lives. From entrepreneurs using Google Workspace to build their businesses to students leveraging Google Search for their studies, these individuals inspire us to continue pursuing our mission of driving digital transformation across Nigeria and Africa more broadly.

Ultimately, technology's power is in the benefits it brings to individuals and communities. The stories in this report reflect the profound ways it can improve the day-to-day lives of Nigerian citizens.

Olumide Balogun
WEST AFRICA DIRECTOR,
GOOGLE

ABOUT THIS RESEARCH

In this paper, we used a range of different methods to quantify the economic impact and helpfulness of Google's products and services.

Economic Modelling

Building on the precedent of previous Google impact reports from markets including the UK, the United States, and Europe, we used traditional economic modelling built upon third-party estimates of Google market size across Sub-Saharan Africa, and standard returns on investment (ROI) to measure the economic activity driven by Google's core products. To learn more about our modelling approach, please see the Methodology section in the report's appendix.

Opinion Polling

Working with independent providers Dynata, we conducted extensive online polling of **2,258** online adults in Nigeria. At the same time, we polled **140** senior business leaders from small, medium and large online businesses, representing a range of different industries. We also conducted an online survey of **539** YouTube Creators based in Nigeria. Public First is a member of the Market Research Society. The full tables for all the data used in this report are available to download from our website.

While Google commissioned this report, all information in this report is derived or estimated by Public First analysis using both non-Google proprietary and publicly available information. Google has not supplied any additional data, nor does it endorse any estimates made in the report. Where information has been obtained from third party sources and proprietary research, this is clearly referenced in the footnotes.

INTRODUCTION:

GOOGLE'S COMMITMENT TO NIGERIA

As the continent's most populous country, with more than 250 ethnic groups, Nigeria's diverse culture is recognised around the world. Now home to four of Africa's seven unicorn startups, Nigeria is also building a reputation as a hub for entrepreneurial talent. The country currently ranks 4th on the Startup Ecosystem Index, cementing its front-runner position in Africa's tech scene.

Google is playing a pivotal role in this transformation. In 2021, Google announced a **$1 billion**, five year investment in Africa's digital economy. In Nigeria, this investment includes large-scale infrastructure and connectivity projects, as well as skills programmes tailored to young people and entrepreneurs.

Google's commitments to Nigeria include:

Investing in connectivity and growth

The Equiano Subsea Cable, stretching from Portugal to South Africa, landed in Nigeria in late 2022. The cable is providing higher quality and more reliable connectivity to Nigerians.

Empowering Young People

In 2023, Google announced a $1.5 million grant to train 20,000 Nigerian women and youth from underserved communities with essential 21st-century skills, as part of plans to support the Nigerian government's programs to create more than one million new internet-based jobs.

Supporting Nigerian Entrepreneurs

Programmes including the Black Founders Fund, Hustle Academy and Google for Startups Accelerator: AI First, are all providing support to Nigerian entrepreneurs and young businesses by facilitating access to funding and bridging skills gaps through tailored training.

Aside from these direct investments in Nigeria's digital economy, Google's services are spearheading economic modernisation and growth.

Google Search and Ads help African companies connect with new customers, both locally and globally.

Google's platforms, including the Play store, offer ways for African businesses to digitally distribute their services.

Google's tools, such as Workspace, Cloud and Gemini, help increase the productivity of African companies and workers.

Google's content sharing platforms, particularly YouTube, are increasing revenues in the cultural sector, and giving a voice to Nigerian creators.

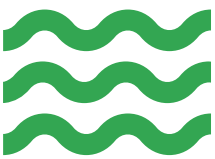
Putting a monetary value on these benefits helps to illustrate their impact. We estimate that Google Search, Google Play, YouTube, Google Cloud and Google advertising tools have contributed $1.8 billion of economic activity for Nigeria's businesses, nonprofits, publishers, creators and developers in 2023.

In practice, this means that by using Google's tools, businesses, nonprofits, publishers, creators, and developers in Nigeria were able to grow, thrive, and create employment opportunities worth $1.8 billion in a single year.

Putting Google's $1.8 billion impact into context:

$900mn

The projected cost of the Abuja - Kaduna railway line.



$2.5bn

The projected cost of the Badagry Deep Sea Project.

What is economic activity?

Economic activity refers to the actions that involve the production, distribution, and consumption of goods and services.

1. **Production:** Creating goods and services. This includes manufacturing, farming, mining, and other industries that produce tangible products, as well as services like healthcare, education, and entertainment.

2. **Distribution:** Moving goods and services from producers to consumers. This includes transportation, logistics, marketing, and retailing.

3. **Consumption:** The use of goods and services by consumers and businesses. This drives demand, which in turn stimulates further production and distribution.

Economic activity can be measured in various ways, such as Gross Domestic Product (GDP), employment rates, and business revenues. It reflects the overall health and dynamism of an economy.

GOOGLE'S PRODUCTS AND SERVICES

Search

A powerful search engine that allows users to find information on the internet quickly and efficiently.

Gemini

Google's most capable AI technology that supports an entire ecosystem – from the products that billions of people use every day, to the APIs and platforms helping developers and businesses to innovate.

Maps

Comprehensive navigation services, offering real-time traffic updates, directions, business information, and street-level imagery to help users explore the world.

Youtube

A video-sharing platform where users can upload, watch, and interact with videos, ranging from entertainment and music to educational content and vlogs.

Photos

A photo storage and sharing service that offers unlimited cloud storage for photos and videos, along with powerful editing tools and automatic organisation features.

Gmail

A free email service that provides users with a secure, efficient, and user-friendly platform for keeping in touch with others.

Workspace

A suite of cloud-based productivity and collaboration tools, including Gmail, Docs, Drive, Calendar, and Meet, designed to enhance teamwork and streamline business operations.

Translate

A translation service that supports over 100 languages, allowing users to effortlessly translate text, speech, images, and web pages.

Android

An open source operating system for mobile devices, offering a customizable and user-friendly interface, a vast ecosystem of apps, and seamless integration with Google services.

Ads

An online advertising platform that allows small and large businesses to reach targeted audiences and drive measurable results through pay-per-click campaigns.

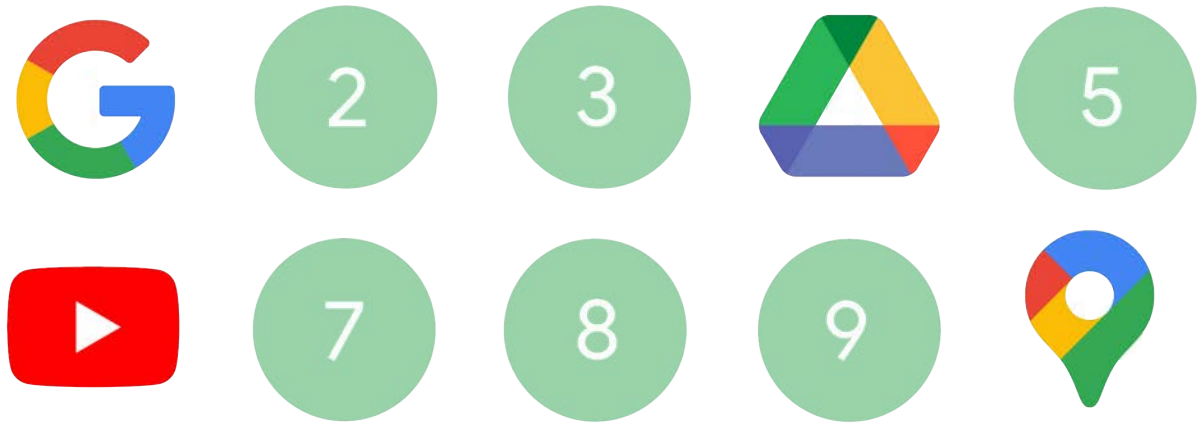
Google Cloud

A suite of cloud computing services, including data storage, machine learning, and computing power, enabling businesses to innovate and scale efficiently.

GOOGLE'S IMPACT IN NIGERIA

Building More Helpful Products

Google's impact in Nigeria spreads beyond its contribution to GDP and economic prosperity. Its products and services are transforming the lives of ordinary people in Nigeria. **Indeed, Nigerian online adults identified Google Search, Google Workspace, YouTube and Google Maps as being high among the ten most helpful innovations of the last thirty years.**



Nigerian online adults identified Google Search, Google Workspace, YouTube and Google Maps as being high among the ten most helpful innovations of the last thirty years.

When it comes to **learning**, Google Search has become a dominant feature of the internet for Nigerians. Free of charge, the tool creates value for both consumers and businesses alike, helping people acquire knowledge and skills, breaking down information costs, and connecting consumers to local businesses.

73% of online adults strongly agreed that Google Search is essential to their daily lives

71% of online adults strongly agreed that Google Search is helpful

Google Search's Consumer Surplus

One way to quantify the total value created by Google Search is through a measure used by economists known as the consumer surplus.

The consumer surplus of products that are offered for free looks at how much a product is worth to a user and how much you would have to compensate them to go without it.

In 2023, we estimate that Google Search alone creates a consumer surplus for the average online adult in Nigeria worth **$9.9** a month, or almost **$119 a year**. In other words, given that Search is offered to consumers free of charge, you would have to compensate Nigerians $119 per year to lose access to the service.

Apps like Google Maps are similarly making navigation and travel more efficient. Lagos, Nigeria's largest city, is often regarded as the most congested metropolis in the world, with commuters spending an average of 30 hours in traffic each week.[4] In this context, Google Maps provides an important resource for residents of the city, helping them to avoid congestion, as well as offering alternative travel options such as walking, cycling or public transport.

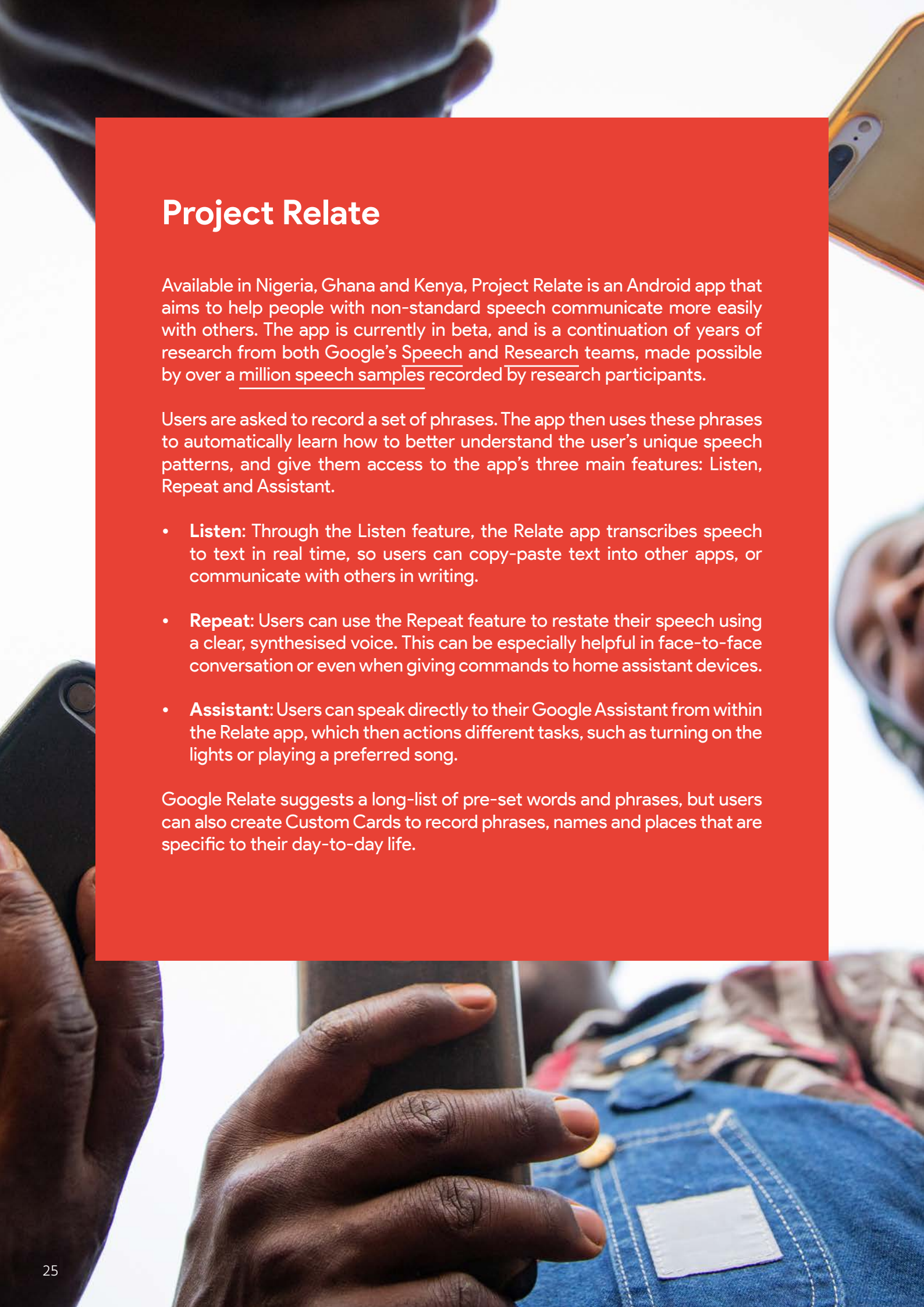
59% of online adults have used Google Maps in the last month to avoid traffic congestion or public transport delays

63% of online adults have used Google Maps to search for public transport routes and times

83% of online adults have used Google Maps at least once in the last month to search for directions when travelling

When it comes to **communication**, Google Translate is helping to connect Nigerians from different linguistic communities. The tool has supported Nigeria's three most common local languages (Hausa, Igbo and Yoruba) for over a decade - and, as of June 2024 - Google Translate now uses AI to support more African languages than ever before.

4 Business Day Nigeria, 2018



Project Relate

Available in Nigeria, Ghana and Kenya, Project Relate is an Android app that aims to help people with non-standard speech communicate more easily with others. The app is currently in beta, and is a continuation of years of research from both Google's Speech and Research teams, made possible by over a million speech samples recorded by research participants.

Users are asked to record a set of phrases. The app then uses these phrases to automatically learn how to better understand the user's unique speech patterns, and give them access to the app's three main features: Listen, Repeat and Assistant.

- **Listen**: Through the Listen feature, the Relate app transcribes speech to text in real time, so users can copy-paste text into other apps, or communicate with others in writing.

- **Repeat**: Users can use the Repeat feature to restate their speech using a clear, synthesised voice. This can be especially helpful in face-to-face conversation or even when giving commands to home assistant devices.

- **Assistant**: Users can speak directly to their Google Assistant from within the Relate app, which then actions different tasks, such as turning on the lights or playing a preferred song.

Google Relate suggests a long-list of pre-set words and phrases, but users can also create Custom Cards to record phrases, names and places that are specific to their day-to-day life.

Ensuring Young People Succeed

In Nigeria - where around 70% of the population are under 30 - education is foundational in helping young people break out of poverty, join the workforce and contribute to the economy. Whether by helping them research information for their studies, find jobs or complete online skills programmes, Google is setting Nigeria's young population on the path to future success.

59% of young online adults have used Google Search to apply for a new job in the last 6 months

94% of young online adults have used Google Search to help with studying

74% of young online adults said that their education would have been significantly more difficult without access to Google Search

As the digital transformation translates into economic opportunity, the jobs of the future will increasingly require new digital skills. Young people in Nigeria are ready to meet this demand and cultivate a new, digitally adept workforce. In our research, an overwhelming **84%** of young online adults in Nigeria strongly agreed that digital skills will be important to their future career.

Overall, we estimate that **1.5 million** young adults aged 18 - 24 have learned new digital skills through Google Search in 2023. This translates to over **$460 million** improvement in productivity for Nigeria.

In addition to the impact of its core products and services, Google's skills programmes are also helping Nigerians advance their technological know-how:

- Google's Career Certificates Programme, is enabling Nigerians to learn advanced skills in cybersecurity, programming languages like Python and SQL and Digital Marketing & e-commerce. Overall, **16,500** people in Nigeria have graduated from a Google Career Certificate Programme, with **80%** of certificate graduates reporting a positive career outcome within 6 months of completion.
- In 2023, Google announced a **$1.5 million** grant to train 20,000 Nigerian women and youth from underserved communities with essential 21st century skills, as part of plans to support the Nigeria government's programs to create more than one million new internet-based jobs.

When asked about the possible opportunities presented by technology, young people said:

> It will help boost the economy and create more jobs for the youth.
>
> **Woman, 18, Kwara State**

> Improved access to education and information, empowering more people with knowledge and skills to contribute to the country's development.
>
> **Man, 20, Akwa Ibom State**

> In Nigeria, one of the most significant benefits new technology could bring over the next decade is improved access to education and healthcare.
>
> **Man, 19, Lagos**

> Boost my country's economy and make us grow faster up to the level of more developed countries.
>
> **Woman, 18, Lagos**

> New technology would enable new job opportunities to be created in different sectors of the economy.
>
> **Woman, 20, Lagos**

Africa to Silicon Valley

Google's partnership with Africa to Silicon Valley (A2SV) is making a difference in Africa by developing local tech talent. Now in its third year, this collaboration has trained over 250 students since 2019, with a 100% job placement rate for graduates at major tech companies like Google, Amazon, and Microsoft. The programme's success has led to its expansion across Africa, including the founding of an A2SV Chapter at Addis Ababa University.

By offering comprehensive training in technical and soft skills, this initiative is creating high-paying tech jobs for young people in Africa, increasing African representation in global tech, and fostering local innovation. Google's support through funding, mentorship, and resources is crucial in growing A2SV's impact, contributing to Africa's tech ecosystem as an emerging hub for talent in the global digital economy.

Empowering Entrepreneurs

In Nigeria, the importance of striving for success is hardwired into the population's DNA. This mindset feeds into recognisable "hustle culture", where young Nigerians will juggle multiple jobs at once, whether it's selling products at Lagos' sprawling Balogun market or driving a taxi around Kano to make some extra cash.

85% of online adults describe themselves as an entrepreneur

25% of online adults say they work as an entrepreneur full time

60% of online adults say they they are pursuing their own business as a "side hustle"

Given this entrepreneurial spirit, it is perhaps unsurprising that Nigeria's startup ecosystem is so successful. Over the years, Nigeria has seen the rise of five unicorns. In 2022, Nigerian startups accounted for 28% of all the funded ventures in Africa, receiving a total of $900 million in funding for that year.[5]

Google is helping to translate the hard work and tenacious attitude of Nigerians into real success. 78% of online businesses agreed that the costs of starting a business have reduced substantially because of internet tools such as Google Search, Gmail, Google Docs, Google Workspace or Google Business Profile.

Beyond the impact of its core services, Google has launched tailored programmes to help young Nigerian entrepreneurs grow their businesses, take advantage of emerging technology and address key barriers to development such as access to finance and digital skills gaps.

- Google for Startup's Black Founders Fund has supported 135 entrepreneurs in Sub Saharan Africa since 2021, with over **$10 million** of non-equity funding.
- Google for Startups Accelerator Africa has helped growth-stage startups solve problems using advanced technology.
- **10,300** SMBs from across Kenya, Nigeria and South Africa have graduated from Google's Hustle Academy bootcamp since 2022.

5 The Africa Tech Startup Funding Report, 2023

Crop2Cash, Nigeria

Nigeria

Agriculture is one of the most important sectors of the Nigerian economy. Yet the majority of agricultural workers are employed on smallholder farms, and many live on less than $2 a day. Low yields, limited technological innovation and lack of capital are restricting the ability of farmers to grow revenues and provide for their families.

Startup Crop2Cash is addressing these challenges, providing smallholder farmers with access to formal financing and digitising supply chain management for agricultural processors. The startup offers two products. The first, CashCard, is an Android-based digital ecosystem that enables farmers to receive digital payments and build their financial identities, helping them to build credit histories and gain access to funding. The second, Supply Base, is a programme built on the Google Cloud which helps agricultural processors manage their relationships with farmers and other suppliers.

Crop2Cash benefited from the guidance and resources of both Google for Startups Accelerator, as part of the 2020 cohort, and Google for Startups Black Founders Fund in 2021. With the support from Google and access to funding and Google Cloud credits, Crop2Cash was able to grow their users from 45,000 in 2020 to 300,000 in 2022, and exert a tangible, positive impact on smallholder farmers and the Nigerian agricultural sector more widely.[6]

6 Google, 2024

Hustle Academy Fund

Nigeria

Google's Hustle Academy is helping Nigeria's community of entrepreneurs to thrive, through a new Hustle Academy Fund. At the end of last year, Google announced that 15 new Nigerian SMBs would receive a combined 75 million Naira to contribute to the growth and expansion of their business. The investment in these companies focuses not only on financial aid but also on providing mentorship and ongoing support.[7]

Recipients of the grant range from agripreneurs like John Samuel Andefiki who is looking to develop an online presence and e-commerce function for his KitaFarm business, which specialises in the efficient production and distribution of paddy rice and maize, to fashion designers like Ifeoma Augusta Anselem, whose Rae's Clothing aims to bring quality, affordable clothes made with locally sourced fabrics to all Nigerians.

7 Google, 2023

Connecting Businesses With Customers

From expanding customer reach to streamlining operations, digital technologies have transformed what it means to run a business. In turn, Google products and services ensure that companies take full advantage of the myriad opportunities that having an online presence creates.

Our consumer polling confirms that Google tools are widely used by Nigerian consumers to find local businesses that suit their needs and compare prices:

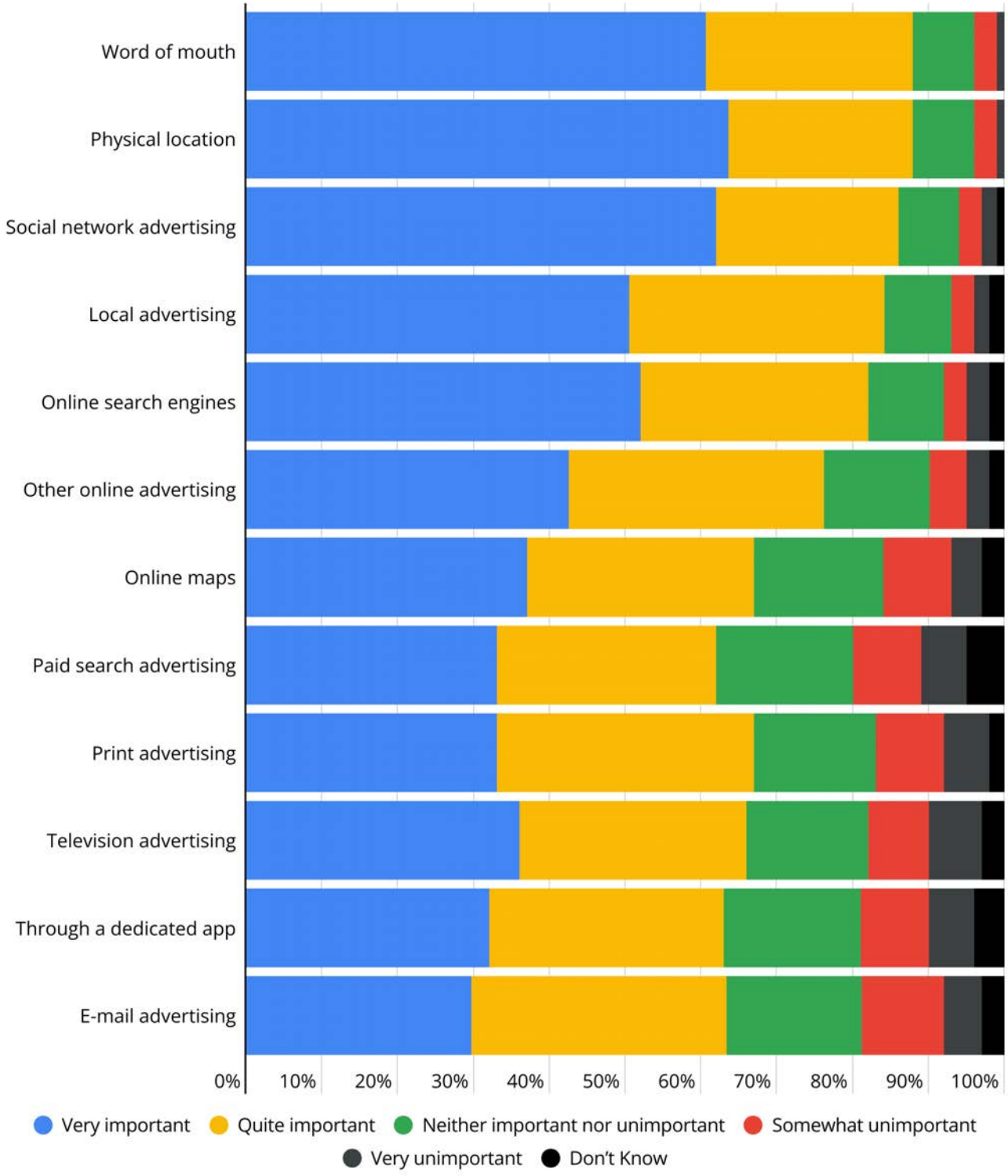
70% of online adults have used Google Maps to find a local business in the last month

69% of online adults have used Google Search or Google Shopping to find a local business in the last month

Our business polling shows that online search, online maps and paid search advertising were among the most effective ways that businesses connected with customers. On average, companies reported that around **11%-20%** of their new customers find them through Google Search.

Google is also helping local businesses expand into international markets. Given Google's global footprint, tools like Search and Ads are empowering Nigerian companies with an online presence to reach overseas customers. **83%** of online businesses in Nigeria agreed that online search engines have made it easier for global customers to find their business.

Which, if any, of the following are the most effective ways your business connects with customers? Select all that apply.



This in turn provides unique opportunities for business growth as well as increased revenues. **In total, we estimate that Google Search and Ads are supporting $608 million in exports beyond Nigeria's borders.**

Boosting Productivity

Google tools are making the daily life of Nigerian workers easier. Services like Google Search save employees time by offering rapid answers to a range of complex questions, while Google's tailored productivity suite Workspace helps workers keep on top of workstreams and collaborate more effectively.

In total, we estimate that Google Search and Google Workspace save workers over **22 million** hours a week in Nigeria. This is the equivalent of producing a **$4.7 billion** improvement in productivity across the country.

76% of online adults strongly agreed that Google helps them to be more productive at work

64% of online adults strongly agreed that their job would be very difficult or impossible if they did not have access to Google Workspace

54% of online businesses strongly agreed that Google's tools and services have helped accelerate the growth of their business

In February 2024, Google launched its new paid Gemini model. Over the next few years, Gemini is expected to continue building capabilities to help workers keep on top of their emails, draft documents, query their company's existing data and do new analysis. **In our business poll, over half of online companies in Nigeria told us they expected to use AI to help them automate administrative tasks in the next few years.**

Championing the Creator Economy

Nigeria is famed for its creative culture, from a critically acclaimed Afrobeats scene to the global success of Nollywood blockbusters. YouTube is now helping the next generation of Nigerian creators continue such a rich legacy.

It is therefore not surprising that Nigeria's YouTuber community is the most successful on the continent. With over 9 million subscribers on his @MarkAngelComedy account, Nigeria's Mark Angel is Africa's leading YouTube Creator. In June 2023, the number of Nigerian channels with over a million subscribers rose to 45.[8]

We polled YouTube Creators across Nigeria to understand their experiences sharing content on the platform. YouTube is democratising culture and creativity across Nigeria. Allowing ordinary Nigerians to create and share exciting content with new audiences, YouTube also empowers Creators to monetize their ideas.

In total, 86% of Nigerian creators we surveyed agreed that YouTube had given them a platform they wouldn't have otherwise had, helping them to share their content with a larger audience.

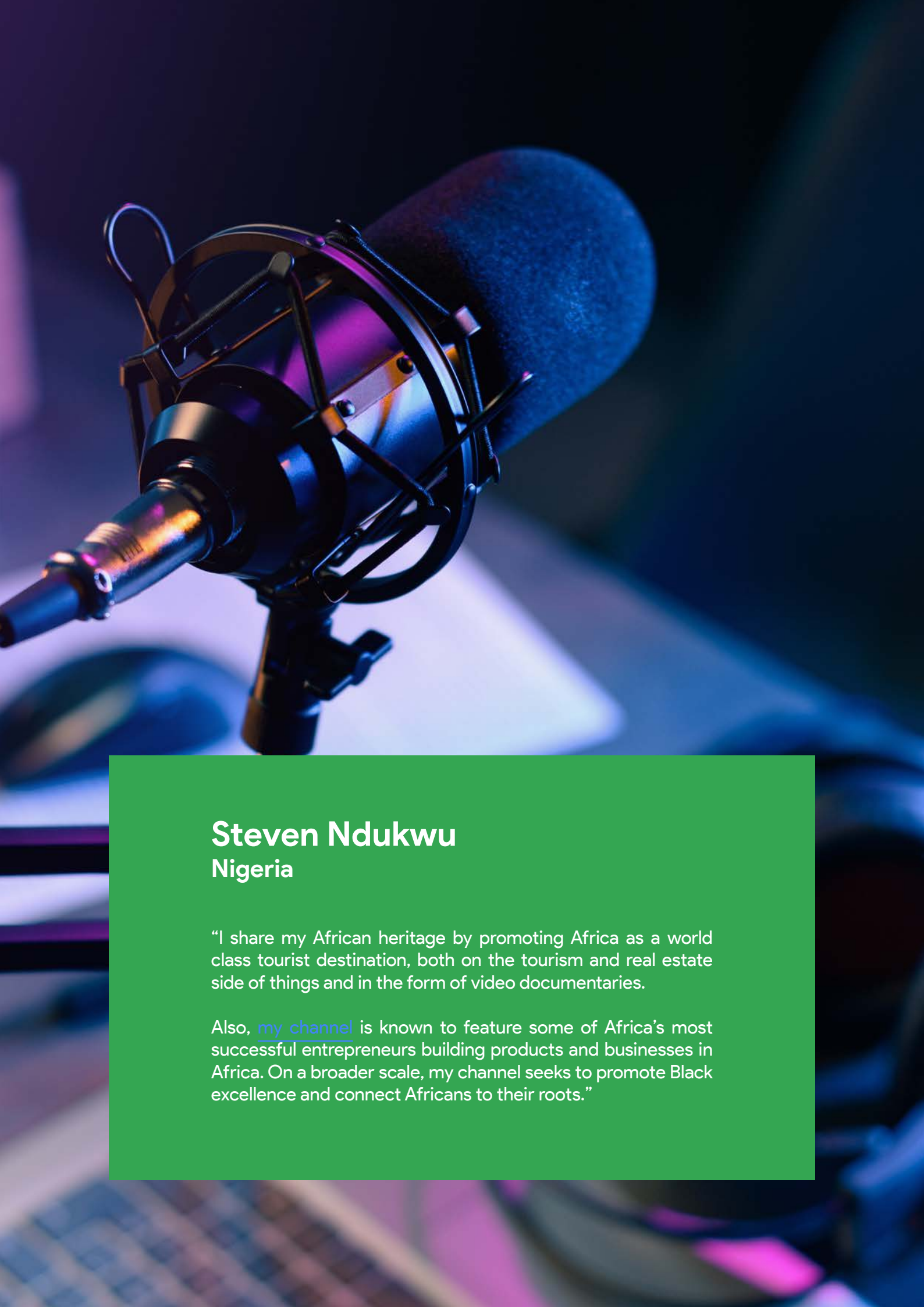
96% of Creators surveyed agreed that YouTube allows them to be creative

93% of Creators surveyed agreed that YouTube makes it easier to communicate to the world

96% of Creators surveyed started their YouTube channel to inspire others

The popularity of the platform across the globe means YouTube is an engine for the promotion of Nigerian culture across Africa and worldwide. Nearly a third (**32%**) of the Creators who participated estimate that a majority of their viewers are outside of Africa, and **78%** said that showcasing their culture was an important reason they started their YouTube channel.

8 Nairametrics, 2023



Steven Ndukwu
Nigeria

“I share my African heritage by promoting Africa as a world class tourist destination, both on the tourism and real estate side of things and in the form of video documentaries.

Also, my channel is known to feature some of Africa’s most successful entrepreneurs building products and businesses in Africa. On a broader scale, my channel seeks to promote Black excellence and connect Africans to their roots.”

With more and more views, popular YouTube channels in Nigeria gain income through advertising, the YouTube Shorts fund or brand deals. Nourishing Nigeria's entrepreneurial spirit, YouTube is helping Creators follow their dreams whilst also making money in the process.

71% of Creators surveyed agreed that YouTube has helped them to monetise their hobby or passion

80% of Creators surveyed agreed that YouTube has helped them to pursue their entrepreneurial ambitions

59% of Creators surveyed have successfully monetised the content they upload to their YouTube channel

With the opportunity to monetise their ideas and content, YouTube plays an important role in the careers of Creators in Nigeria. Nearly half (47%) of those that we surveyed describe themselves as full-time, professional Creators, and over a quarter (27%) employ one or more staff to help their channel run smoothly, further helping to develop their reach and audience.

Nigeria's already extraordinary YouTube Creator community is set to keep growing, taking advantage of new technology and innovation along the way. More than a third (36%) have already experimented with AI tools to support their creative process.

Supporting Developer Talent

Nigeria has a budding network of developers, growing by over 5,000 in 2021.[9] Google's mobile ecosystem encompassing Android and Google Play Store is then crucial in supporting this growth, providing key resources to help developers in Nigeria distribute their apps and services.

Android's standard compatibility across a variety of devices prevents the need to develop multiple different versions of apps. This limits development costs for app developers and reduces time spent maintaining cybersecurity standards. In total, we estimate that Android has saved app developers in Nigeria over **144,000** days - the equivalent of **$2.4 million** in reduced development costs.

With Google Play Store's extensive global footprint, Nigerian developers can draw on a vast market of **2.5 billion** users across the world, who in turn make over **140 billion** downloads a year, to market their products. In 2023 our research shows that the Android App Economy generated over **$13 million** in revenue for Nigerian developers, while the Android developer ecosystem is supporting over **24,500** jobs across Nigeria.

Beyond the developer ecosystem, these benefits have positive spillover effects for consumers who can exploit the wider variety of choice and more affordable apps and services.

9 Google, 2022

NIGERIA'S DIGITAL TRANSFORMATION

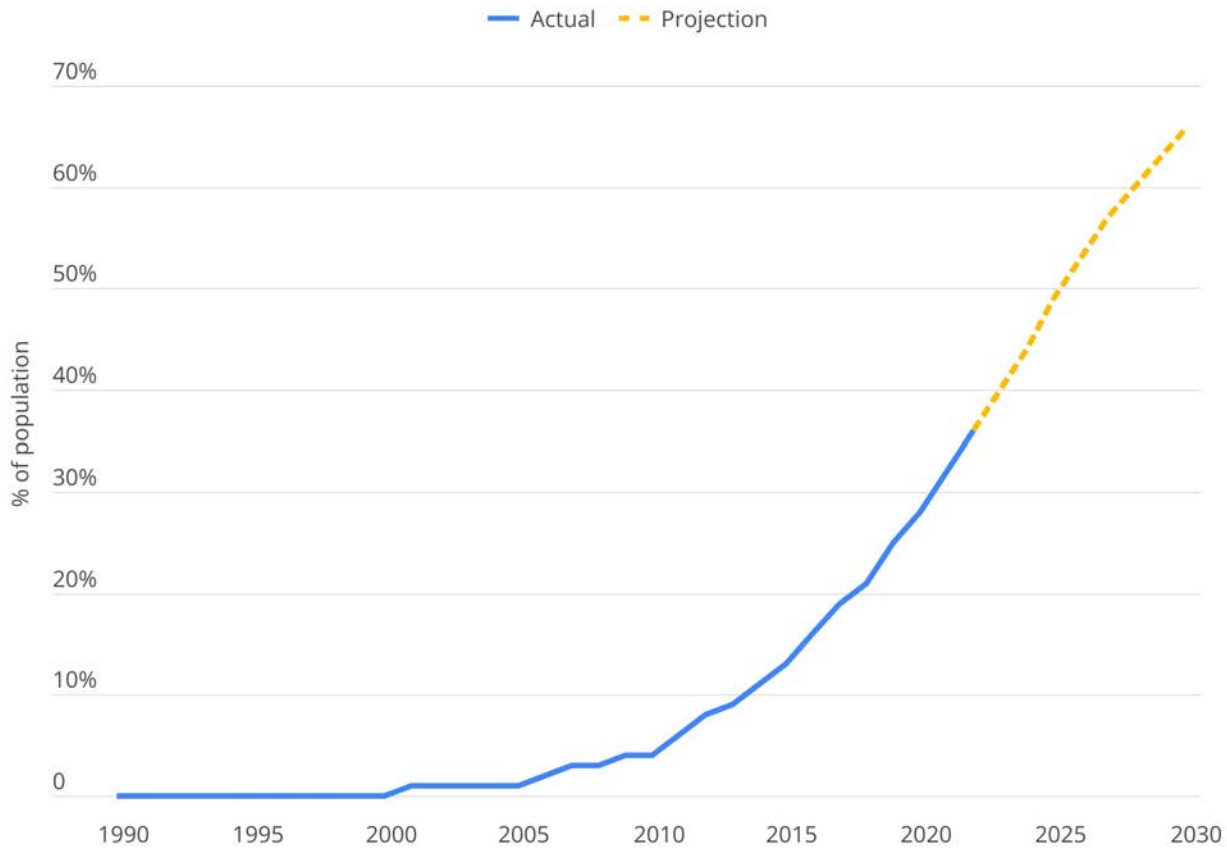
Investing in Digital

Nigeria is in the midst of economic modernisation. Bouncing back from the pandemic, the World Bank predicts the country's GDP to grow at an increasing rate over the next few years - 3.7% in 2024 and 4.1% in 2025.[10]

Technology will be critical to this success. As it stands, the ICT sector contributed a remarkable 16.7% to real GDP in the final quarter of 2023. And, according to our latest research, we estimate that every $1 invested in the tech sector on average contributes a remarkable $8 to the wider Nigerian economy.

By 2030, we predict internet usage in Nigeria to increase by over a third. As more Nigerians get online, and as the country's digital infrastructure improves, Nigeria has the opportunity to become a global economic powerhouse.

Internet adoption in Nigeria



In our polling for this report, Nigerians recognised the potential from digital technology. 72% of online adults in Nigeria were optimistic about the impact technology will have in the next ten years, compared to only 13% who were pessimistic – and **77% strongly agreed that technology is one of the most important ways their country's economy can grow faster.**

However, in order to take advantage of this opportunity, Nigerians must be empowered to utilise emerging technologies like mobile broadband, cloud and AI. This in turn will help the country to reduce poverty, improve standards of living and emerge as a global hub for technological innovation.

10 Worldbank, 2023

When asked about the possible impact of technology in their country, adults from the region said:

> New technology could help prevent fraud, especially in the banking system. It can also save lives in the medical sector with the use of improved medical devices.
>
> **Woman, 23, Plateau State**

> It could create millions of jobs and help the youth to be more productive.
>
> **Man, 24, Lagos**

> It can help my country increase the yield in farming.
>
> **Man, 24, Akwa Ibom State**

> It would provide better job opportunities and better amenities making life generally easier for the citizens.
>
> **Woman, 24, Enugu State**

> New technology will advance development in every sector of my country from education to health to agriculture.
>
> **Woman, 27, Abuja**

> It will make communication easier for everyone.
>
> **Man, 24, Katsina State**

Connectivity

People can only benefit from the internet if they can access it. According to the ITU, just 35% of Nigerians were regular users of the internet in 2022.[11] Meanwhile, the informal nature of the Nigerian economy also means that a majority of businesses are not online. While 56% of formal businesses have an online presence, just 22% of informal businesses do.[12]

Nigerians therefore have a real appetite for increasing internet connectivity and speeds.

76% of online businesses strongly agreed that fast and reliable internet is essential to their business' day-to-day operations

85% of online adults strongly agreed that they wanted access to faster internet speeds

Repeated studies have stressed the importance of increasing internet connectivity and adoption for supporting wider economic growth. Using Public First's internet connectivity index, we estimate that a 1 percent increase in connectivity is associated with a 5.7% increase in GDP.[13]

11 ITU, 2023
12 Nairametrics, 2021
13 This index takes into account the population's access to fixed and mobile broadband, its relative affordability and overall data consumption.

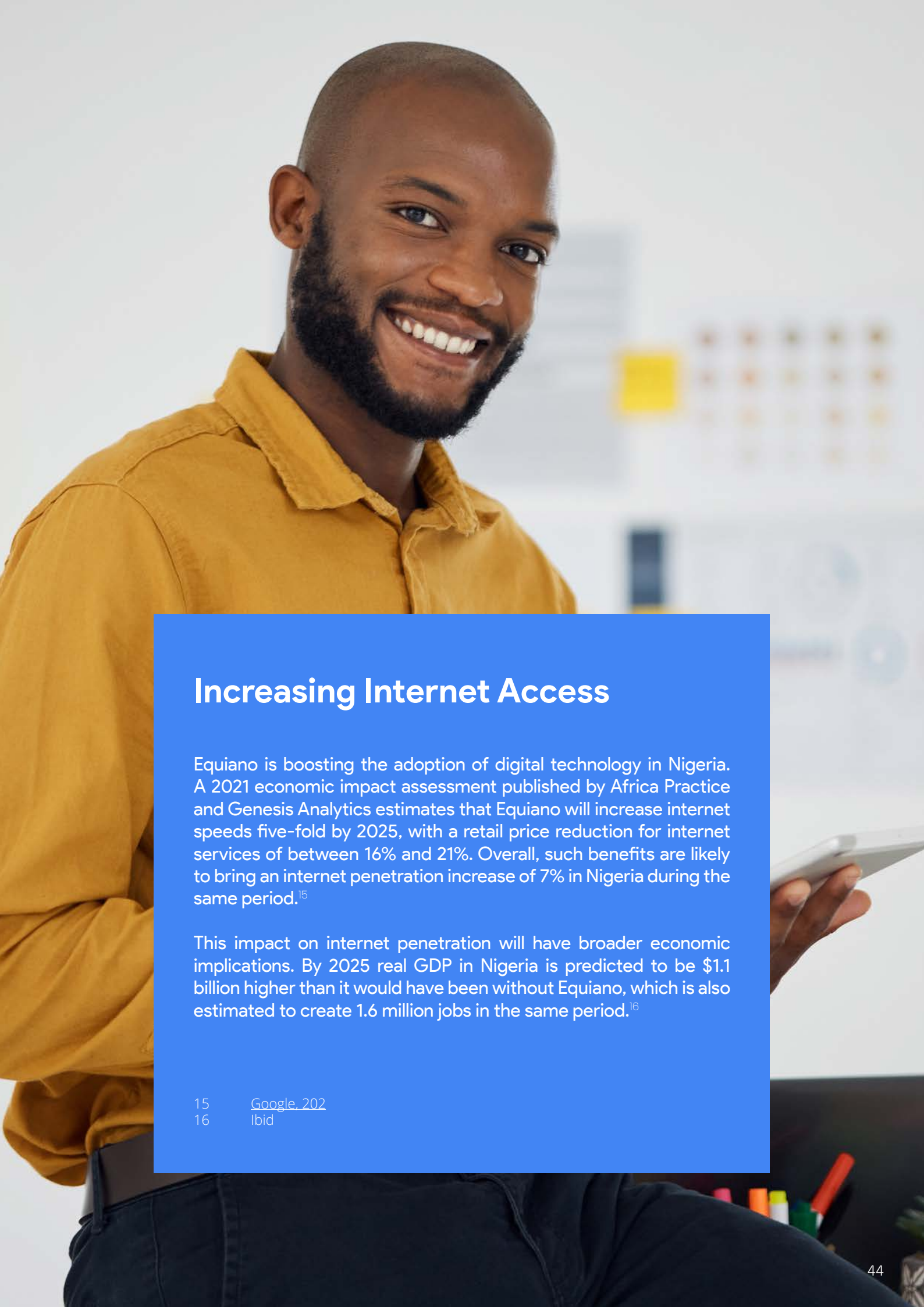
Equiano Subsea Cable

Connecting Africa to Europe

As part of its Africa Connect initiative, Google recently launched its subsea cable Equiano that connects Europe to the western coast of Africa. Conceived as a way to bring internet infrastructure to critically underserved regions, and named after prominent Nigerian writer and abolitionist Olaudah Equiano, the fibre-optic cable runs direct between Lisbon, Portugal and Cape Town in South Africa, with branches landing in Nigeria, Togo and Namibia in late 2022.

Owing to its innovative design based on space-division multiplexing (SDM) technology and incorporating optical switching at the fibre-pair rather than wavelength level, Equiano has around 20 times more network capacity than the last cable built to serve the region.[14]

14 Google Cloud, 2019



Increasing Internet Access

Equiano is boosting the adoption of digital technology in Nigeria. A 2021 economic impact assessment published by Africa Practice and Genesis Analytics estimates that Equiano will increase internet speeds five-fold by 2025, with a retail price reduction for internet services of between 16% and 21%. Overall, such benefits are likely to bring an internet penetration increase of 7% in Nigeria during the same period.[15]

This impact on internet penetration will have broader economic implications. By 2025 real GDP in Nigeria is predicted to be $1.1 billion higher than it would have been without Equiano, which is also estimated to create 1.6 million jobs in the same period.[16]

15 Google, 202
16 Ibid

Improving Internet Reliability

Historically, the west coast of Africa has experienced extensive internet outages. And while mobile connectivity has improved in recent years - with 81% of the population now covered by 4G - access to more reliable fixed broadband is still very limited, reaching only 8% of Nigerian homes as of 2017.[17] Equiano provides safety in numbers, ensuring more coverage to protect against outages and providing the means for increased fixed broadband connections.

In fact, Equiano has already been put to the test, when in March 2024 damage or downtime from other subsea cables caused outages across western Africa, leading to a massive increase in connections being routed through the cable from across the region.[18]

17 ITU, 2023
18 Capacity, 2024

As well as improving the quality and reliability of connectivity infrastructure through initiatives like Equiano, Google is also committed to improving affordability of connected devices.

A majority of Nigerians access the internet through a mobile device powered by Android, representing millions of people. This includes a cohort who would have been unable to access the internet at all without the affordability driven by the Android ecosystem. By providing Android as a free and open source operating system, Google enables manufacturers to build a wide range of devices at different prices, with some manufactured at costs as low as **$50.** Once a consumer has access to a smartphone and is online, they can then access a variety of services such as Search, Gmail, and YouTube for free.

In our polling, **71%** of online adults in Nigeria strongly agreed that without affordable smartphones and free internet services, many Nigerians wouldn't be able to use the internet. **In total, we estimate that Android's increased affordability has allowed an additional 5 million Nigerians to access the Internet, who would not have otherwise been able to do so.**

Cloud Computing

The cloud is a comprehensive network of remote servers hosted on the internet that manage, store and process data. Cloud technology provides an array of benefits for businesses, including upfront infrastructure cost reductions, greater reliability and security of services, and scalability as a company grows.

Google's relationship with the cloud began back in 2008 when it launched the App Engine. Since then, Google has become a pioneer in cloud technology. Its Google Cloud Platform, made public in 2011, offers a plethora of cloud-based services from simpler collaboration and storage tools like Google Workspace and Drive, to more complex analytics and developer tools like BigQuery and the Google Kubernetes Engine.

Previous research by both Public First[19] and Deloitte[20] has found that investment in public cloud services leads to an average net return of investment of over 2 to 1. This is rooted in the improved efficiency and productivity of enterprises that have adopted cloud technologies. In total, we estimate that Google Cloud already saves over 30 million hours for Nigerian businesses a year.

Cloud services are also producing positive environmental externalities. Google data centres use 50% less energy compared to the typical data centre, and are powered by 100% renewable energy sources such as wind and solar power. By moving computing workloads to Google Cloud, we estimate that businesses have prevented over 31,000 tonnes of CO2 emissions.

There is now real opportunity to scale these benefits across the Nigerian economy. We estimate that only around 9% of companies across Nigeria are currently making use of the cloud. However, this is likely to more than double by 2030 - creating $5 billion in additional economic value for the economy.

19 Public First, 2022
20 Deloitte, 2018

Leveraging Google Cloud to Promote Financial Inclusion

While mobile banking has become prevalent across Nigeria, just 55% of the population had access to a bank account in 2021. However, many businesses, especially young SMBs, are still underbanked, and it is becoming harder for them to compete in an increasingly cashless society. Launched in 2019, Moniepoint, a Nigerian fintech company, is attempting to fix this, combining advanced technology with local business managers to help underbanked SMBs process payments, access credit, and organise their operations online.

To make this difference, Moniepoint relies on Google Cloud. While some services are operated on-premises, analytics and high traffic transaction workloads run on Google Cloud. Leveraging varied, advanced cloud solutions such as Cloud SQL and Cloud Bigtable to automate processes, enhance transaction speeds and improve service reliability helped to scale the company.

As a result, Moniepoint has doubled its customer base from 300,000 to 1.3 million SMBs and was recently ranked by the FT as the second fastest growing business on the continent. The company is now expanding further, experimenting with new cloud applications such as Google's BigQuery.

Co-founder of Moniepoint Felix Ike stresses the ease of use and scalability offered by Google Cloud, as well as the flexibility of being able to experiment with different services on a pay-as-you-go basis.

Google Cloud "helped us to build an infrastructure that grew with the business without straining our resources... and gave us a very reliable playground in which we could try and test our ideas." [21]

21 Google Cloud, 2024

Artificial Intelligence

Whilst currently in its early stages, AI has the potential to transform the productivity of Nigerian businesses and workers - helping tackle some of the country's largest economic and societal challenges.

Google and its parent company Alphabet have long been one of the world's leading innovators in AI. AI is the backbone of many Google products, including Search, Maps, and Cloud, whereas Google's groundbreaking Transformer model laid the foundation for today's large language models.

In the present day, **74%** of online adults in Nigeria think it is very likely they will explore more AI-powered tools in the next year - and are interested in a range of potential benefits offered by the emerging technology.

78% of online adults were very interested in using AI to help protect them online

69% of online adults were very interested in using AI to eliminate mindless or repetitive tasks at work

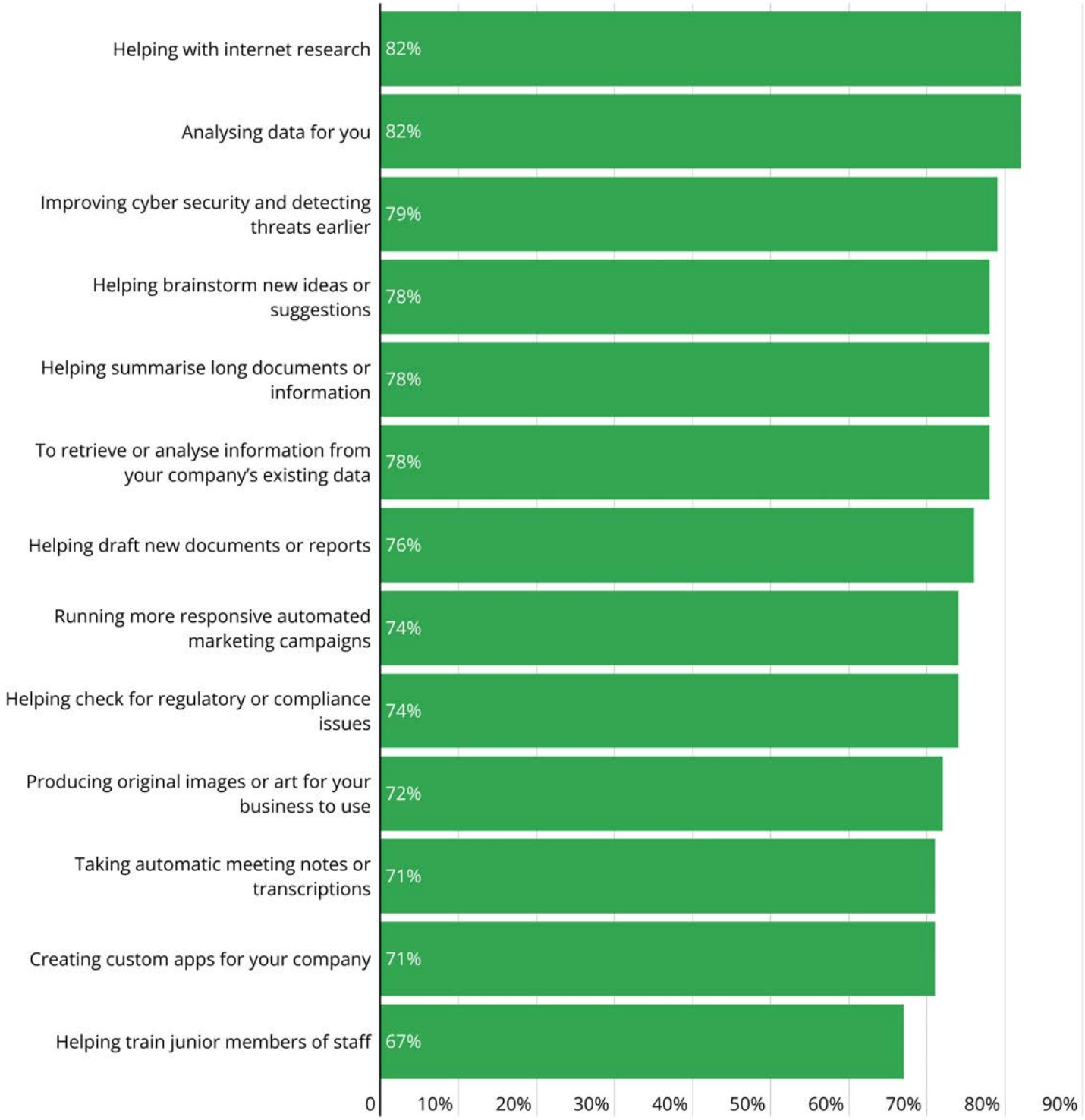
70% of online adults were very interested in using AI to alert them to a potential health risk

Similarly, we saw a clear appetite among African businesses for experimenting with AI:

53% of online businesses plan to invest in AI tools over the next couple of years

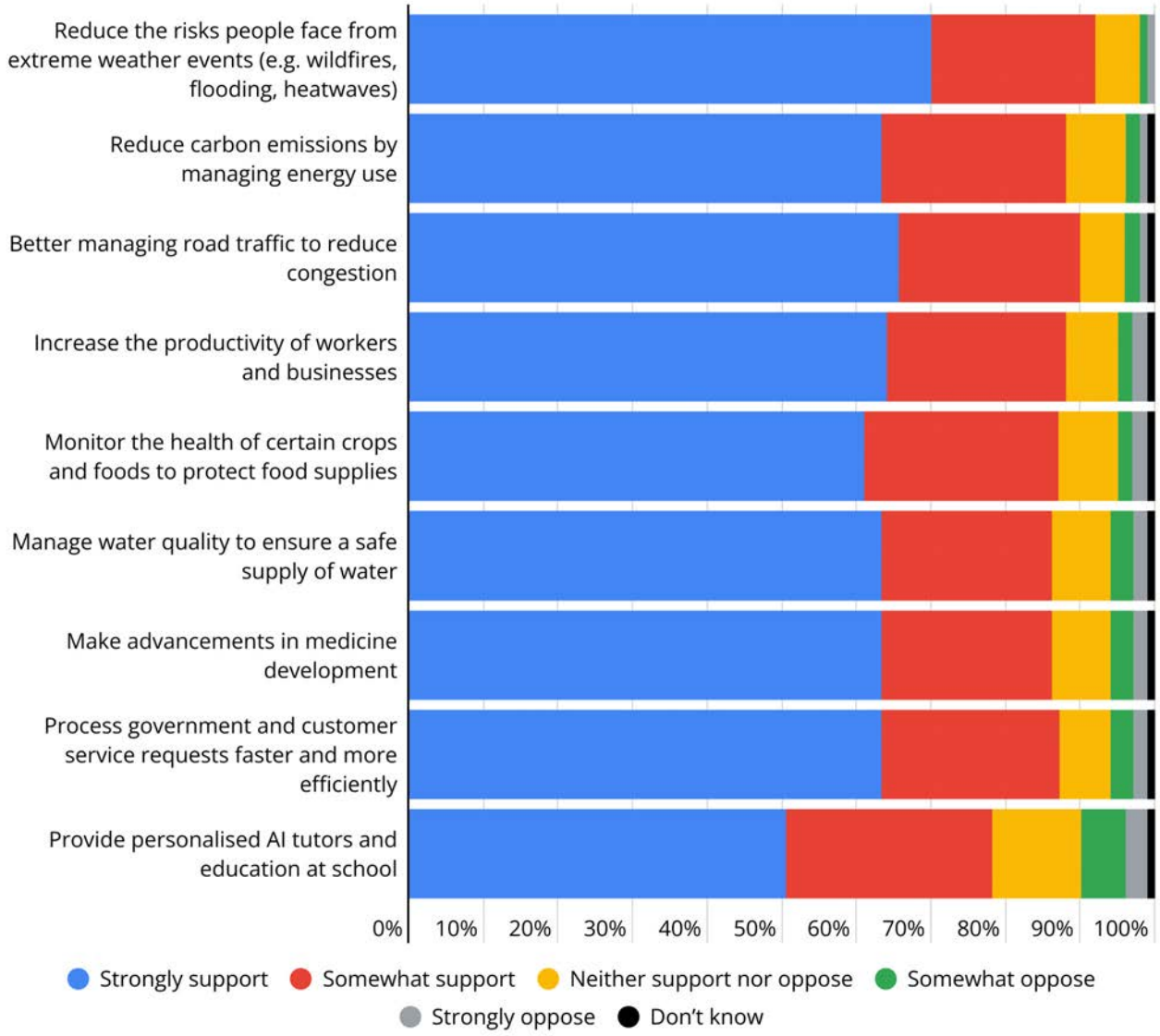
69% of online businesses thought it was very likely AI would help them improve productivity

Which, if any, of the following use cases of gen AI tools do you think could be potentially helpful for your business?



This immense economic potential associated with AI is then interconnected with broader societal benefits. When asked how they would like to see AI being used more widely in society, there was widespread support for a whole range of use cases:

Would you support or oppose AI being used more widely in society to do the following?



This aligns with Google's work to develop bold and responsible AI that makes the world a better place. Google is working with local governments and businesses to drive socially impactful AI solutions throughout Nigeria.

Supporting Maternal Care

While only 0.06% of annual global births occur in the country, Nigeria contributes 28% of global maternal deaths every year.

Given the evidence that long travel times play a part in negative maternal outcomes, Google recently partnered with the OnTIME consortium to release a tool to help public health organisations - including the healthcare planning authorities in Lagos, Edo and the Federal Capital Territory (FCT) - address challenges around accessing emergency obstetric care.

Google's internal directions API - which also powers navigation in Google Maps — is enabling decision makers to see data around average travel times to the nearest emergency obstetric facilities in different regions, helping them better understand where pregnant women may have limited access to life-saving care and improving maternal outcomes. Now implemented, the tool maps travel times to critical facilities in Nigeria's 15 largest cities, enabling decision-makers to improve access by expanding ambulatory services, upgrading roads, and adding new facilities.[22]

22 Google, 2023

Boosting AI Skills

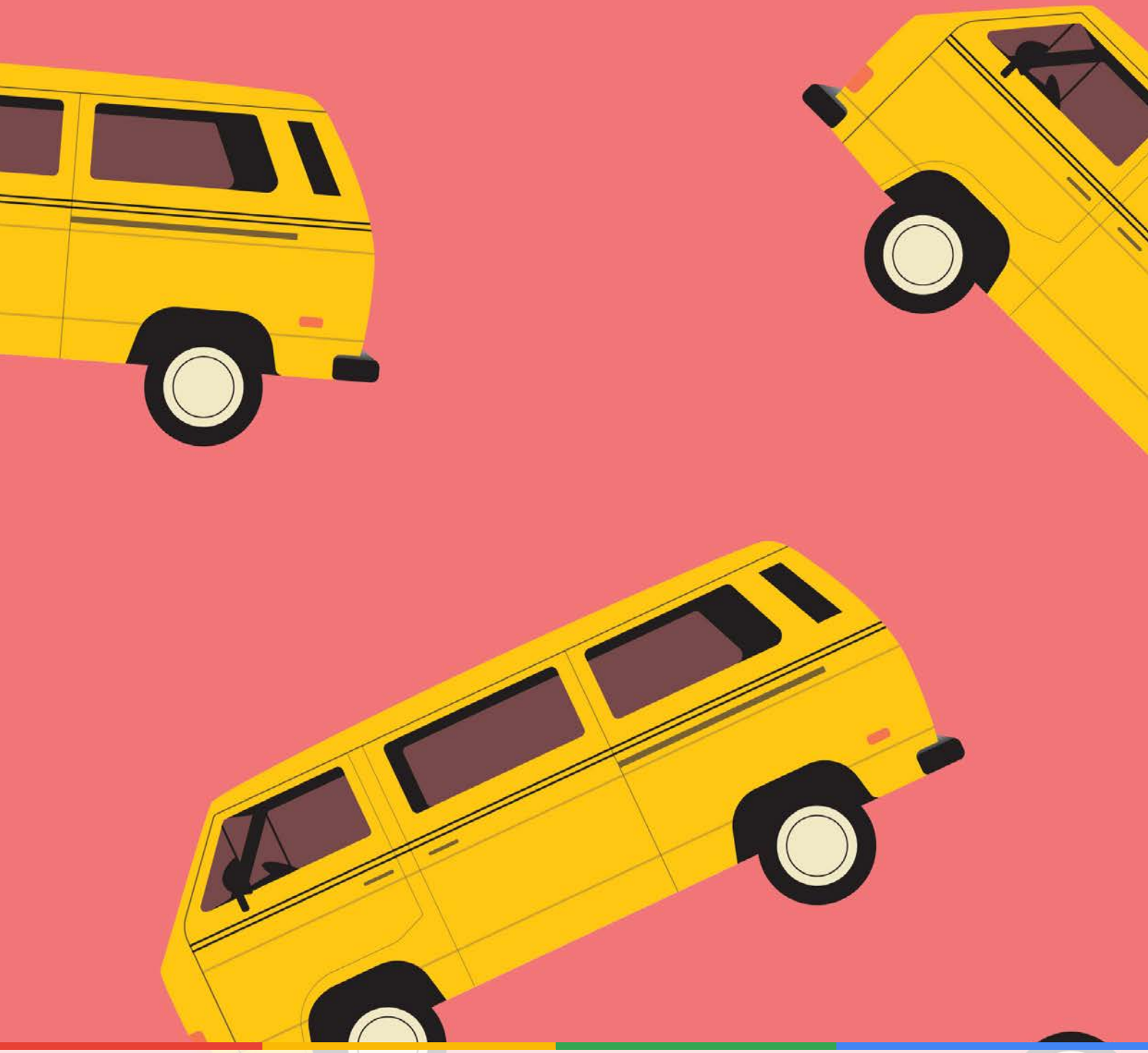
The educational and career opportunities for young people are uneven across Nigeria. In Northern Nigeria, access to careers in the tech ecosystem are particularly limited due to a range of factors from lack of infrastructure to language barriers.

To address this, Google is collaborating with Data Science Nigeria and local government in the Northern state of Kaduna to roll out the AI for Beginners Learning Video Series. The series teaches the key concepts associated with Artificial Intelligence in the local Hausa language, simplifying complex technology and making it more accessible. Through engaging animations and culturally relevant imagery, the series is designed to make complex concepts more relatable to people from the Kaduna state, promoting greater participation in the growing tech sector and fostering strong digital skills.

"By equipping our people, especially our women, with AI skills, we're not only paving the way for a more prosperous and innovative Northern Nigeria, but also laying the foundation for Kaduna to become a thriving tech hub."[23]

Uba Sani, Governor of Kaduna State

23 TechPoint, 2024



GOOGLE'S POLICY RECOMMENDATIONS FOR NIGERIA

The Digital Sprinters report published by Google in 2020 established a framework for policymakers to harness the economic potential of digital technologies. That framework is even more relevant today as countries seek to participate in the AI transformation.

Becoming an AI Sprinter — an emerging economy that harnesses AI to accelerate economic development — requires both widespread AI adoption and adaptation to local needs. A robust digital foundation is crucial, and the four AI Sprinters pillars offer a roadmap for building it:

Revolutionise infrastructure with 100% adoption of cloud-first policies

Cloud computing is essential for governments, local enterprises and organisations to deploy AI systems cost-effectively, securely and at scale — ensuring that AI is widely and inclusively deployed. Policymakers should advance cloud-first initiatives that prioritise cloud solutions over traditional IT systems.

Support people with national AI skills initiatives

AI promises to propel economies forward — but this can only happen if workers know how to use AI to enhance their productivity and expertise. Google.org's initial AI skilling commitment for developing countries is a first step. More collaboration between the public and private sectors is needed to build AI fluency, strengthen STEM education and increase online learning opportunities.

Modernise national data systems

High-quality datasets that represent diverse perspectives, languages and cultures are essential for training AI models effectively for local markets. Governments should commit to better utilising and sharing data to improve public services like health care, education, transportation and disaster response, and invest in the infrastructure needed to promote responsible use of data. Similarly, governments should enable trusted cross-border data flows to ensure models and systems are trained on rich, geographically diverse data.

Support AI-enabling regulation

Continued AI innovation — both in AI models and applications — requires the right regulatory framework, one that ensures that AI can be responsibly and boldly deployed. Governments should pursue risk-based and proportionate approaches to regulation; maintain privacy and copyright frameworks that enable use of publicly available information while respecting legitimate rights; support and contribute to the development of international technical standards for AI; and adopt national AI strategies.

METHODOLOGY

Economic Impact

Google Ads

Following the precedent of past Google impact reports, we use third-party data to estimate the total size of the Nigerian Google Ads market, combining our estimate of the paid search market with Statcounter estimates of Google's market share.

In order to produce estimates of the total size of the paid search market for Nigeria we used PWC's Global Media and Entertainment Outline provided data.

Following the methodology of the US Google Economic Impact Report, we then scale this revenue by an assumed Return on Investment (ROI) factor of 8, from:

- Varian (2009) estimates that businesses make on average $2 for every $1 they spend on AdWords.
- Jansen and Spink (2009) estimate that businesses receive 5 clicks on their search results for every 1 click on their ads.
- Google estimates that search clicks are about 70% as valuable as ad clicks.
- Total ROI is then 2 * spend + 70% * 5 * 2 * spend – spend = 8 (spend).

AdSense

In order to estimate total Adsense revenues, we combined:
- Google's published Network Revenue for 2021, 2022 and 2023;
- An assumption on Traffic Acquisition Costs as a % of Network Revenue, based on past published TAC data;
- Nigeria's share of non-video display spending, derived from PWC data.

Cloud

In order to estimate total Google Cloud revenues, we combined:

- Statista data on total public cloud revenue in Nigeria and Google Cloud's market share;
- An assumption that every dollar invested in Cloud services by users generates a net return.

YouTube

In order to estimate the total spend on YouTube Advertising, we combined:

- YouTube's published global advertising revenue;
- Nigeria's share of total global video display spend, drawing on PWC and Statista data;
- An assumed revenue share of 55%.

Android

In order to this estimate total Android revenues, we combined:

- Statistic data on total app revenue by country;
- Statcounter data on Android market share by country;
- Assumed developer share of revenue.

In addition to this, we conservatively assume that developers earn the same amount from indirect contract work as they do from app stores.

Potential Economic Impact of Generative AI

We drew on the US O*Net occupation database, which contains information on 51 different types of work activity for around ~800 types of occupation.

- Based upon Goldman Sachs' identification of the types of tasks exposed to automation by generative AI, we classified the proportions of tasks in each occupation that were susceptible to automation. This includes:
  - Excluding tasks with the highest level of complexity;
  - Excluding tasks which largely take place outdoors or have large levels of physical activity. (This leads to a relatively low level of automatability for e.g. agriculture and production occupations, which is one reason why the overall level of automatability is lower.)
- We aggregated this into broader economic categories based on their overall share of US employment and average wage bill, and then created our own crosswalk to convert the results from each occupation to the corresponding occupation in ISCO-08.
- We then applied to each country based on ILO data on employment and average wages per occupation. When data is missing, we impute based on a regression against GDP.
- Aggregate by wage bill occupation and sector to produce an estimate of the total possible improvement in labour productivity.
- Assumed capital intensity remained constant and converted this labour productivity improvement into an overall improvement in GVA.

Potential Return on Investment from Digital Technology

Our headline estimate is an equally weighted estimate of investing in:

- Mobile broadband and telecoms;
- Generative AI;
- Cloud.

Mobile Broadband

To estimate the potential ROI from mobile broadband, we:

- Drew on historic ITU data on mobile broadband subscriptions, and applied an S-curve adoption model to project forward likely adoption through to 2030.
- Used GSMA data to convert penetration data into an estimated overall penetration rate.
- Drew on a ITU / TAS (2019) regression on the impact of increased mobile broadband penetration on growth.
- Used ITU data on mobile broadband costs as a proportion of GNI per capita to estimate costs per user.

Cloud

To estimate the potential ROI from cloud, we:

- Estimated a weighted average of cloud spend per employee, based on Statista data running through to 2028, and then project this forward to 2030.
- Combined the results of two models to look at its impact on economic activity:
  - In the first model, we applied a direct ROI to overall cloud spend, based on the average reported ROI from Public First's own internal dataset on businesses reported ROI from cloud.
  - In the second model, we used a regression to translate this overall amount of cloud spend into an overall level of cloud prevalence for Nigeria. We then drew on a literature review of existing research on the connection between digital technology and business productivity (e.g. TAS (2023), OECD (2019)).

Generative AI

To estimate the potential return from AI, we:

- Drew on our estimate for the overall potential from generative AI (as above).
- Applied a 20 year S-curve diffusion model, starting in 2022, to look at the potential proportion of this impact that could be achieved by 2030.

Used our overall automatability estimate per economy as a proxy for the proportion of the workforce that is likely to be affected.

PUBLICFIRST