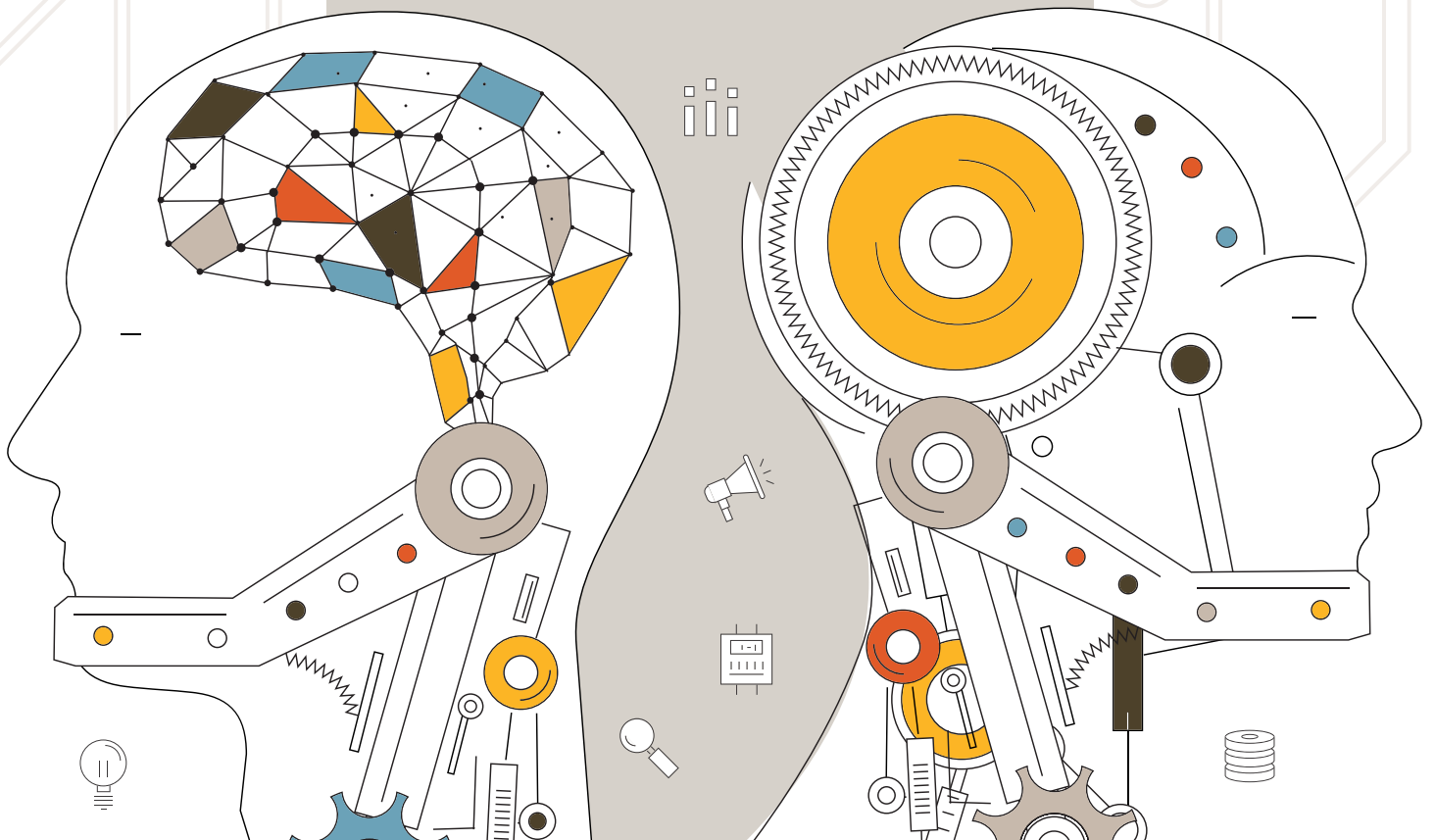




2024 GENERATIVE AI

An Exploration of GenAI for
Non-Tech Entrepreneurs
and Youth



Messages

2024 is marked by huge interest in Artificial Intelligence (AI) with market value expectations, according to Bloomberg, of over US\$1 trillion by 2027. Companies are spending millions seeking ways to leverage AI as a business tool, and non-tech entrepreneurs around the world are watching with fascination, many wondering how to use this new tech to grow their businesses.

At AIfE (the African Institute for Entrepreneurship), we specialise in research and thought leadership in new technologies, investigating how they can be leveraged for greater economic growth and inclusion.

How do we assist entrepreneurs – particularly those outside tech – to take advantage of the advancements in new technology to expand their businesses?

A key element of AI is its ability to democratise tech. By democratisation we mean that tech is made more accessible and affordable. Yet, this can only happen in the right environment. Appropriate information-sharing, transparency, ethical frameworks, policies and assistance to entrepreneurs are required to make this possible.

This research study is one of many we have conducted at AIfE to democratise data-sharing and information. We've also done work in drone tech, fintech, health tech, among others. We see data-sharing and providing resources as critical to the development of the entrepreneurship ecosystem and to providing entrepreneurs with doorways to greater opportunity.

We welcome you on our journey to bring evidence-based data and knowledge to entrepreneurs and those who assist them across Africa.



Tamiko Sher
Executive Director and Co-founder,
AIfE

It is with great excitement that we embarked on this project looking at Generative AI and how it can be used for non-tech entrepreneurs and youth. As the first-time Lead Researcher and a young tech entrepreneur, engaging with those in this incredible field has been enlightening.

Providing youth with the opportunities to lead, engage and share insights is important to me. I look forward to discussions with those in the entrepreneurship and tech world about how we, as tech entrepreneurs and researchers, can assist youth and non-tech entrepreneurs to enter the world of technology and thrive as they contribute to growing the entrepreneurship ecosystem in Africa.



Vinnie Mzolisa
Lead Researcher and Digital
Facilitator, AIfE

The South African Innovation Summit (SAIS) is proud to be a partner with AIfE in presenting four of their annual publications on the stage at SAIS. These thought leadership dialogues are an important element in fostering collaboration, transparency, and knowledge and data-sharing in the entrepreneurship ecosystem.

Each year during the SAIS annual events, AIfE has presented a joint research paper. Many of these have led to catalytic interventions and programmes, as well as opening doors for the panellists and speakers for new avenues of growth and opportunity.

We are proud to be part of this strategic paper, 2024 GenAI for Non-Tech Entrepreneurs and Youth, and look forward to future collaborations with AIfE.



Buntu Majaja
CEO, South African Innovation
Summit

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How this research will help democratise tech

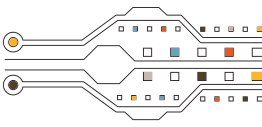
AIfE, the African Institute for Entrepreneurship, is an NGO and PBO that creates platforms to assist entrepreneurs with identifying opportunities, particularly those in new technologies and approaches. Our mission is to ensure economic inclusivity by the open sharing of information, consolidating insights, learnings and recommendations from experts to assist entrepreneurs who are breaking into, building new businesses, or scaling existing businesses.

How do we ensure that there is access to information – the gold of today? It is only by the level of transparency, sharing and continuous learning that we can 'even the playing field' and create research that assists entrepreneurs to develop the businesses of tomorrow.

Research on Generative AI for non-tech entrepreneurs and youth is integral to this process. While those in the tech world are well-equipped, many in non-tech and those with limited access need information and access to resources to find their first steps.

This research seeks to begin answering those questions, encompassing over 80 desktop resources and numerous interviews with tech and non-tech entrepreneurs, policy makers and academics. At times, the best learnings come from those who have walked – or begun to walk – the paths that many entrepreneurs seek.

For more information, visit <http://aife.africa>



01 Introduction

There are few areas of the tech world developing faster than Generative AI (GenAI). The development of GenAI is sometimes compared to the development of calculators – in the beginning, there was resistance and suspicion.

Many at first doubted the calculator's capabilities and teachers thought students were cheating by using them, while now calculators are considered an indispensable enabling tool. Similarly, the ability to leverage GenAI effectively is increasingly becoming a base skill in the workplace, in education, and in entrepreneurship.

What does GenAI mean to Africa – and South Africa?

New technologies are the bright, shining opportunities of the future – and yet, how do we ensure we can democratise tech by being inclusive, unbiased and informative?

Goldman Sachs analysts predict expenditure of up to \$1 trillion on developing AI solutions over the next few years. The biggest tech companies in the world – Microsoft, Apple, Amazon, and their partners - are in a rush to compete in this space.

The capabilities of the technology grow exponentially – daily, weekly, monthly – with new AI start-ups crowding into a space that only a few fully understand, and most of the world watches in fascination.

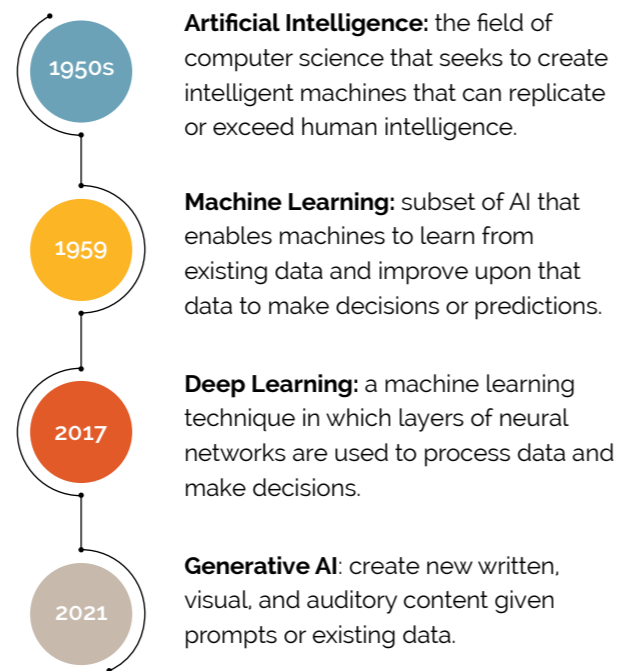
What does this mean for Africa – and, specifically, for South Africa?

It can be challenging to be a non-tech entrepreneur – perhaps a small business, a lawyer, architect, consultant, or professor – and work out how GenAI can assist your small or medium-sized business. What do entrepreneurs need to do in this fast-evolving space? How can educators, incubators, donors, and private sector and government agencies assist in this process?

Those outside the tech space can feel outside the loop. How well are we catering for non-tech entrepreneurs, and in particular, for youth?

What GenAI can do is democratise AI technology for smaller businesses and entrepreneurs. Being able to use sophisticated tools without needing a massive budget allows start-ups to compete with larger businesses. GenAI contains the potential to train the next generation of youth to be fully functional in this ever-changing tech landscape.

This is a new moment for AI



Source: Republic of South Africa Communications and Digital Technologies (2024) Minister Gungubele's Keynote Address at the National AI Government Summit 5 April 2024.

The emergence of GenAI did not happen overnight. It started in the 1950s with Artificial Intelligence, progressed in 1959 with Machine Learning, Deep Learning in 2017 and Generative AI in 2021.

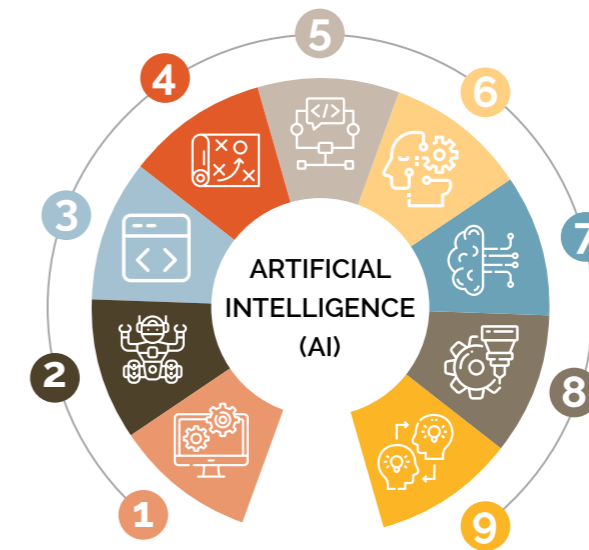
How did AI come into being?

In the 1950s, Alan Turing developed the 'Turing test' to determine whether a machine was more intelligent than a human being. By the 1960s, knowledge-based systems using heuristic programming for molecular compound analysis were employed, and by the 1970s the grand-daddy of AI emerged with the advancement of algorithms.

Today's AI is made up of many components. They

are not all the same and are employed for different uses. The ones relevant to non-tech entrepreneurs and youth can include Knowledge Based Systems, Automated Planning and Scheduling, Optimisation, and Components of AI such as learning, planning and communication.

Elements relevant to those more deeply immersed in the tech space are Machine Learning, Natural Language Processing, Robotics, Computer Vision and areas such as Super Intelligence.



1 COMPUTER VISION

- Scene Reconstruction
- Motion Analysis
- Recognition
- Image Restoration

2 ROBOTICS

- Climbing
- Locomotion
- Actuation
- Sensing

3 NATURAL LANGUAGE PROCESSING

- Text
- Speech

4 AUTOMATED PLANNING AND SCHEDULING

- Automated Planning
- Automated Scheduling

5 OPTIMISATION

- Particle Swarm Optimisation
- Differential Evolution
- Genetic Algorithms
- Evolutionary Algorithm

6 COMPONENTS OF AI

- Knowledge Representation and Reasoning
- Perception
- Learning
- Planning
- Action
- Communication

7 TYPES OF AI

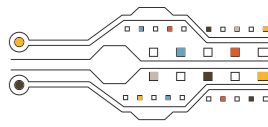
- Artificial General Intelligence
- Artificial Narrow Intelligence
- Artificial Super Intelligence.

8 MACHINE LEARNING

- Supervised Learning
- Unsupervised Learning.
- Reinforcement Learning
- Deep Learning

9 KNOWLEDGE-BASED SYSTEMS

- Linked Systems
- Intelligence Agents
- Case-based Reasoning
- Expert Systems



There is tremendous hype around AI, and in particular GenAI, and for those who do not come from a tech background, the first question is: What is it all about?

The three largest uses for GenAI identified during this research are:

- 1. Transformative data analysis.** What used to take days, weeks and years can now be processed using Large Language Models (LLM), which condense findings, identify and process data in a matter of minutes.
- 2. Data analysis and synthesis.** Areas such as customer preferences, purchasing behaviours, and market trends can be analysed and distilled into usable insights for businesses. This can be valuable in identifying potential customers, developing campaigns, tracking customer behaviour and providing tailored offerings.
- 3. Improving productivity and efficiencies.** GenAI can be applied to improve a person or organisation's processes around repetitive tasks or work, such as developing marketing campaigns, writing proposals, conducting research, and putting together social media content.

Who can benefit from GenAI?

GenAI provides a relatively easy introduction into AI technologies and a way to begin developing entrepreneurs' markets, research and analysis and testing potential product or service offerings.

Many entrepreneurs see AI as a member of their team. Olamide Goriola, founder and CEO of Convergence AI in Nigeria, says, "Since I rely on research, I consider AI as part of my team. [As researchers] we explore ways to use AI as a collaborative tool. I am part of a community where my colleagues and I share the latest information. This collective effort helps us to stay updated on the latest news."

It's this approach to AI that is useful – seeing it as a collaborative tool that will help others, not a threat to one's livelihood or something that can take over the world.

Black Box Dilemma

The use of AI and GenAI can lead to improved productivity and efficiency, but it also has its own risks, one of which is often called the 'black box dilemma' or 'hallucinations.' This technology is still under development, and as it evolves, its flaws will emerge.

The decision-making processes of AI can be unclear and lacking in transparency, leading to biases. No data is perfect, and if the data used to create GenAI models is not sound, the final results will not be sound either.

GenAI tools can be powerful, and users need to be mindful and maintain control of their models, look out for biases and ensure that GenAI tools are not providing biased, discriminatory or otherwise unusable data or results.

While GenAI and other AI models have enormous potential, they also represent ethical challenges for policymakers, developers and users. Areas such as accountability, data bias, transparency and ensuring socio-economic benefit for all are among the issues. More on ethics can be seen in the section on policy.

Importance of digital skills in Africa

According to the World Bank, "Digitalisation is considered one of the most transformative opportunities of our time and a potent tool to eradicate poverty on a liveable planet (Kwakwa, 2024)." Eastern and Southern Africa have the slowest pace of digitalisation globally, with only 64% of the population covered by high-speed internet, and just 24% using the internet (as of 2023). The headline is that today's youth are not sufficiently skilled in basic digital literacy.

Many African governments, including South Africa, have a strong drive to address digital literacy. South Africa has a Digital and Future Skills Strategy addressing the need for mechanisms that foster digital skills development across the country.

Meanwhile, AI and GenAI are racing ahead and being embraced across the world. What makes Africa unique is its ability to leapfrog across generational and development divides. For example, a rural farmer with limited computer capability can still use a cell phone and GenAI technology to increase the productivity of their yields.

This resilience and ability to cross over into new technologies will be an important factor in the development of GenAI and other technologies in Africa today.

This is critically important for entrepreneurship, and in particular for non-tech entrepreneurs and youth.

02 Generative AI and Entrepreneurship

Generative AI (GenAI) is proving to be one of the most useful tools to help entrepreneurs in developing and growing their businesses in the 21st century.

What GenAI does is open doors to a world that was previously only available to those with large resources, big budgets and access to wider areas of knowledge.

Entrepreneurs need to move and learn fast, and GenAI makes it easier to understand concepts, tackle complex business problems, prioritise findings, research difficult issues and be more effective, efficient and knowledgeable.

What GenAI requires of entrepreneurs is to be curious. It demands an exploratory mindset, a willingness to engage in trial and error, look for iterations, experiment and play with the various tools and platforms. Anyone who seeks to be more efficient, learn new processes, and find new ways to do things, could find GenAI to be of great use.

How AIfE uses GenAI

As researchers and entrepreneurs at AIfE, the organisation is always looking for tools and learning to work faster, with greater ease and efficiency. What GenAI has done for the research NGO is to expedite the team's learning processes, help find data, filter information, and conduct analysis faster. AIfE uses GenAI daily in extracting key insights from qualitative research.

GenAI helps the NGO identify blind spots and address weaknesses in its research and programme development. Team members at AIfE see AI as an important colleague and tool which helps the organisation to bring relevant information and create opportunities for entrepreneurs.

The organisation is also in beta stage of the development of an Impact & Productivity Tool led by researcher and digital facilitator Vinnie Mzolisa. More is available on our website at <http://aife.africa>.

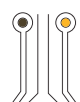
One of the key benefits of GenAI is its ability to automate repetitive tasks. By automating routine tasks, businesses are able to allocate resources more effectively and focus on strategic initiatives. This leads to significant time and cost savings, increases productivity and allows focus to shift to higher-value activities. A good example of this is the use of GenAI to automate administrative tasks, and AI-powered chatbots and virtual assistants that can enhance customer satisfaction and loyalty by providing 24/7 support.

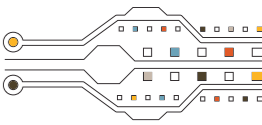
Antonio Araujo of GPO, a TYLin Company in Brazil, uses AI and machine learning algorithms to analyse traffic patterns and maximise bus routes. This ensures that buses are where they need to be during busy times, thus reducing wait times for passengers and improving overall service reliability. GPO also uses GenAI for predictive maintenance of their fleet, allowing the company to lower maintenance costs and anticipate and address potential mechanical issues before breakdowns.

GenAI has the potential to revolutionise the approach to routine tasks, help planning and make processes more effective for large and small businesses.

An important factor in bringing AI into any business context is to start with small initiatives and build on them. Entrepreneur Alex Moyo says, "Small businesses can start by adopting a phased approach to implementing AI. Begin with low cost, high impact tools that address immediate needs, such as customer service chat bots or basic data analytics. This allows businesses to see quick wins and build confidence in AI technologies."

GenAI is not a magic tool to 'fix' things. Non-tech entrepreneurs need to carefully consider which tasks are appropriate for AI assistance and which will require a more human touch.





Potential benefits of GenAI for small businesses

- 1 GenAI can drive revenue growth by enabling businesses to explore new business models and revenue streams. Entrepreneurs can leverage AI-powered tools for specific industries, offering AI-driven services to other businesses, or leveraging AI to develop entirely new markets.
- 2 By leveraging AI-driven personalisation to enhance customer experiences, GenAI can ultimately lead to increased sales and customer loyalty.
- 3 GenAI can be used to produce dynamic ad campaigns that adjust to user interactions in real time, potentially leading to higher engagement and conversion rates.
- 4 Another notable advantage of GenAI is enhancing decision-making processes by providing data-driven insights. By reducing the time and effort needed to analyse data and formulate strategic decisions, GenAI allows businesses to react more swiftly to market shifts and evolving customer demands, significantly improving efficiency and competitiveness.
- 5 To better serve local challenges across Africa, GenAI can address issues such as improving healthcare outcomes, enhancing educational access and quality, and boosting agricultural productivity.



For more information on AlfE's recommended tools, platforms and resources, see **Appendix II**.

The impact of AI on business performance depends on the tasks that entrepreneurs use it for.

Entrepreneurs use GenAI in different ways. Mvelo Hlophe, founder and CEO of Zaio, an online platform in South Africa that teaches digital skills, uses an AI system that works with students "as they are learning." The system identifies coding errors in real time and offers suggestions to help learners when they are stuck.

The AI system also automates the assessment process to provide instant feedback to learners. In addition, Hlophe uses ChatGPT to create proposals, emails and

other documents, making the writing process "much easier."

Alex Moyo, founder of a digital marketing agency in Zimbabwe, uses AI-powered tools for data analysis, market research and customer segmentation, which allows him to create targeted and effective marketing campaigns. He also uses AI-driven content creation tools to generate personalised content for different platforms, which enhances engagement and conversion rates.

The following table illustrates the six key enablers and six key barriers to utilising GenAI identified by the entrepreneurs in this research.

Enablers and Barriers to Utilising GenAI

Enablers	Barriers
Advances in technology and greater user-friendly tools	Lack of infrastructure
Availability of open-source tools and libraries	Implementation costs and access to data
Supportive ecosystem	Steep learning curve and skills gap
Extensive availability of free GenAI resources and learning	Data privacy and security
Automation of repetitive tasks and processes	Integration with legacy systems



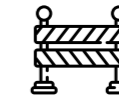
Key enablers of GenAI

One of the key factors facilitating the utilisation of GenAI is **advances in technology**. The development of more powerful computers and cloud computing infrastructure and the availability of sophisticated, increasingly user-friendly AI tools and platforms are key enablers. The **availability of open-source tools and libraries** have made it easier for individuals and organisations to develop and deploy AI solutions without needing extensive technical expertise.

A **supportive ecosystem** that encourages innovation, collaboration, and knowledge-sharing has also been crucial in enabling AI adoption. This includes the growth of the global AI research community, as well as the increasing availability of funding and support for AI start-ups and initiatives.

AlfE has identified, verified and checked the enormous number of courses available, and has information on various free GenAI online resources and learning tools, which are available in Appendix II.

Another key enabler of GenAI is its ability to allow entrepreneurs to **automate repetitive tasks and processes**. This frees up important time for things like strategy, social media, new learning and focusing on customers.



Key barriers to GenAI

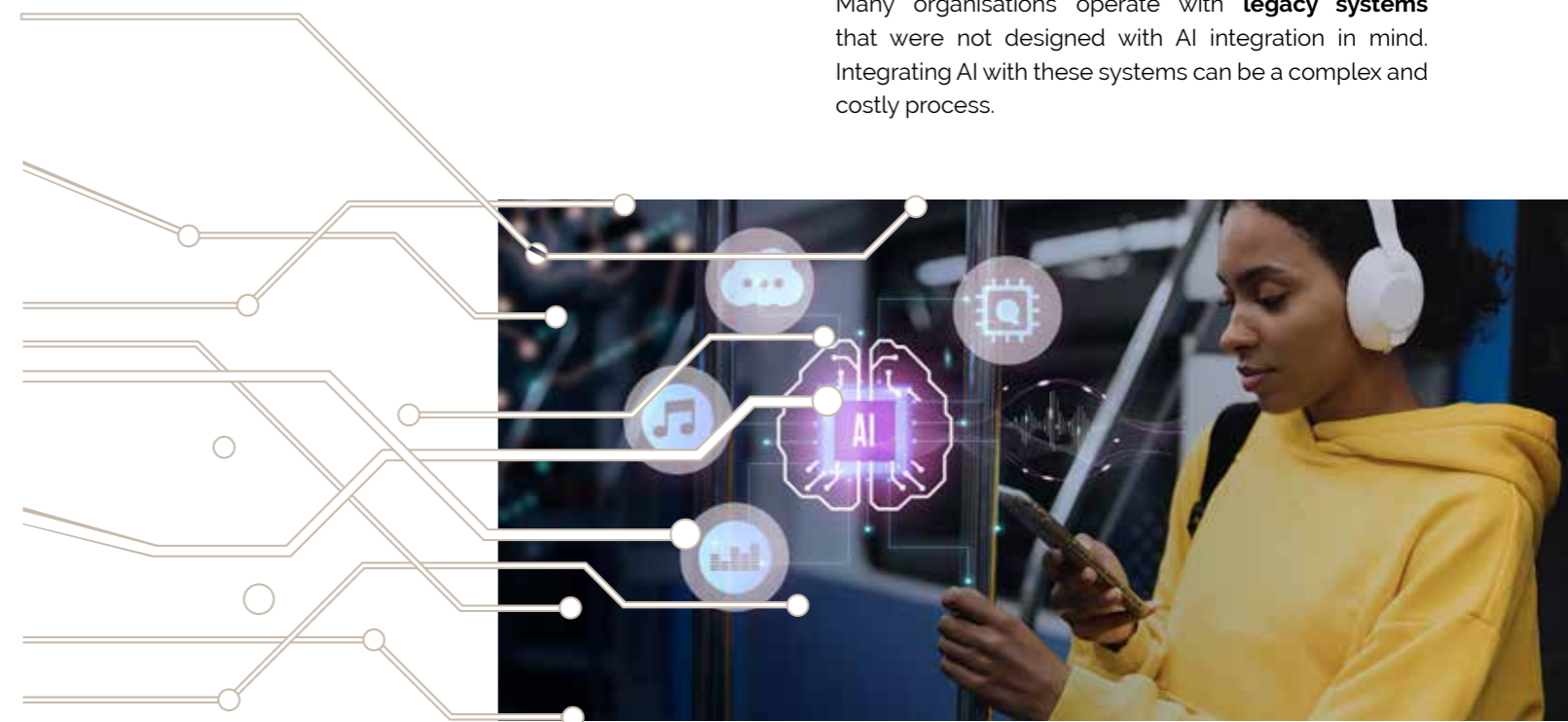
There are also many barriers to making use of GenAI. Integrating GenAI into business operations presents various challenges, which range from technical and financial hurdles to ethical considerations and skills gaps. **Lack of infrastructure**, especially in Africa, is often cited as a barrier.

One of the primary challenges is the high initial **implementation cost**. Deploying AI solutions often requires significant investment in infrastructure, specialised expertise, and ongoing maintenance. It can be difficult to acquire and maintain cutting-edge AI technology, including the costs of hardware, software, and skilled professionals. AI requires a **steep learning curve**, and often **skills gaps** can be an issue.

As businesses collect and analyse vast amounts of data to train AI models, safeguarding this information, such as health data, and complying with data privacy regulations becomes paramount. **Data privacy and security** may require substantial effort and resources.

As AI applications often rely on large amounts of data, ensuring data privacy and security is a significant concern. **Access to data** and issues with available data lacking uniformity, make it difficult for AI applications to function well.

Many organisations operate with **legacy systems** that were not designed with AI integration in mind. Integrating AI with these systems can be a complex and costly process.



CASE STUDIES



Gugu Motsoeneng and EcoSmart

Gugu Motsoeneng is the founder of EcoSmart, a start-up that focuses on sustainable packaging solutions. The company was founded in 2020 with the goal of reducing plastic waste by creating eco-friendly packaging alternatives.

Here are some of the ways that EcoSmart is using AI:

- **Demand forecasting and inventory management:** EcoSmart uses AI to analyse data such as historical sales data, market trends, and seasonal patterns to predict future demand. This helps them to minimise waste and ensure they have optimal stock levels.
- **Market analysis:** EcoSmart uses AI to gain insights into consumer trends and preferences. This helps them to innovate their product offerings and stay ahead of the competition.
- **Quality control:** EcoSmart is exploring using AI-driven quality control systems to detect defects and inconsistencies in their products.
- **Developing new packing designs:** EcoSmart is also exploring the possibility of using GenAI to create new packaging designs that are both visually appealing and functional.



"I just want to emphasise the importance of embracing technology and innovation, even if it seems daunting at first. The potential benefits of AI are immense, and with the right approach, it can significantly enhance business operations and drive positive change."



Motsoeneng is a successful entrepreneur who is using AI to drive innovation and growth at EcoSmart. Her story is an example of how AI can be used to make a positive impact on businesses and the environment.

Empowering Innovation – Carlton Ndlovu and Kai Goodall's Game-Changing Sports Analytics Collaboration



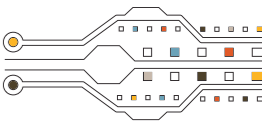
At the intersection of technology and sports innovation, two young engineers are making waves. Carlton Ndlovu, a dynamic software engineer with a proven track record in innovation, and Kai Goodall, an MSc student in Electrical Engineering at the University of Cape Town, have joined forces at Rorschach Innovation Services to revolutionise sports analytics.

Kai Goodall is a highly innovative entrepreneur with research spanning automation, machine learning, and renewable energy systems. He led NextGen Engineers to victory in the prestigious RS Grass Roots Engineering Essentials international competition, with the winning design of a universal, versatile, and low-cost modular toolkit for electrical and mechanical engineering.

His partner, Carlton Ndlovu, is a software engineer leading projects that have advanced fields like sleep health research and injury surveillance in women's football. His expertise in optimising system performance, integrating technologies, and reducing system defects through CI/CD processes has made him an asset in the tech landscape.

Together, their transformative collaboration at Rorschach Innovation Services is developing a cutting-edge sports analytics tool. With FIFA Injury Surveillance Research as a partner, their work is combining real-time data with predictive insights to minimise injuries, setting a new standard for sports technology in player safety and performance analytics.

In an era dominated by big corporations, Carlton and Kai demonstrate that the next generation of engineers and developers are more than capable of leading the charge. Their work in Generative AI and sports technology shows how young people are actively building new solutions, embracing collaboration, and pushing the boundaries of what's possible in the AI space. This partnership serves as a reminder that innovation is more than large tech firms – it's also about passionate young minds collaborating to drive progress forward.



03 Generative AI and Entrepreneurship

It is critical that young people have a basic understanding of Generative AI (GenAI) and its implications to thrive in an AI-driven world. There is a need for more education to empower youth to engage critically with AI, including educating them about data and computational fluency to help them understand how AI systems work.

Why is GenAI important for young people

Understanding GenAI's capabilities will be increasingly important in the lives of young people.

AI is predicted to have a massive impact on the future of work, raising concerns about how the labour market will be structured and the types of jobs available to young people.

Being able to flexibly use GenAI as a skillset can set young people aside from others. Not everyone needs to be a tech expert, yet young people need to be comfortable with tech-related skillsets in order to make the most of a tech-dominated world of work.

Mvelo Hlophe, founder and CEO of Zaio, created his company to help IT graduates become more employable. He believes, "There will be significant changes in the future. I do not subscribe to the belief that AI will replace jobs indiscriminately, but the overall impact is uncertain. New jobs will emerge, but it's unclear if they will compensate for the ones lost."

"I believe that one of the best ways to learn is through skills transfer. In my opinion, practical, on-the-job experience is more effective than only learning from theory. I think that non-technical individuals can greatly benefit from pairing up with someone who has deep technical knowledge."

A focus on knowledge, on practical skills and partnerships are identified by several entrepreneurs as keys to readiness for AI.

The importance of digital capability as a basic skillset

Digital skills are crucial in bridging the digital divide and enabling meaningful participation in a digitally driven society. Individuals with limited access to technology and digital literacy skills face significant barriers to reaping the benefits of AI. This disparity is particularly pronounced among youth from disadvantaged backgrounds, exacerbating existing inequalities.

To address this, digital inclusion initiatives should focus on:



Equipping individuals with essential digital skills: This includes providing access to digital literacy training programmes, particularly for marginalised communities.



Ensuring accessibility and inclusivity: Initiatives must prioritise equal access to skills development and career opportunities in the digital realm.

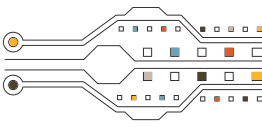


Promoting digital skills training as a pathway to economic empowerment: Digital skills can open doors to employment opportunities, particularly in the rapidly growing digital economy.



Fostering a culture of lifelong learning: As technology continues to evolve, individuals need to continuously update their digital skills to remain relevant in the workplace.

Being digitally skilled in today's world is not enough. With GenAI, young people have the power to shape the future of how the technology will evolve.



Equipping youth to shape GenAI: a multifaceted approach

A focus on education, data and computational fluency, inclusion and diversity, addressing existing inequalities, encouraging diverse participation, culturally responsive design and participation and agency are critical elements to ensure youth are prepared for AI.



Key factors to assist youth to understand and engage with AI

- Designing new educational programmes
- Data and computational fluency
- Critical engagement
- Inclusion and diversity
- Addressing existing inequalities
- Encouraging diverse participation
- Culturally responsive design
- Participation and agency
- Meaningful involvement in design
- Empowering youth as stakeholders
- Fostering collaboration

implications. This involves comprehending AI's impact on various aspects of life, such as education, health, and work.

In terms of computational fluency, understanding the role of data in AI and machine learning is crucial, especially concerning biases, transparency, and ethical considerations surrounding its use. Critical engagement to encourage young people to participate in the discourse surrounding AI and its potential to shape their lives is important.

A focus on inclusion and diversity in finding ways to handle obstacles in AI-powered technology adoption for under-resourced communities can play a role in addressing existing inequalities. Efforts should focus on equitable access to AI systems and the skills to use them.

It's also critical to encourage diverse participation. The current lack of diversity in AI points to the importance of encouraging youth from underrepresented backgrounds to explore AI careers through educational programmes and informal learning opportunities. Culturally responsive design requires AI-based technologies that consider cultural nuances, particularly in areas such as mental health, to avoid biases and ensure inclusivity.

Participation and agency are key components of engaging with youth. Involving young people in designing and developing AI-powered technologies will ensure their voices are heard. Understanding their needs will contribute towards meaningful involvement in design.

Empowering youth as stakeholders will encourage young people to advocate for responsible AI development, push for ethical guidelines, data privacy, and inclusive practices. Stakeholders, including policymakers, educators, parents, and youth, need to foster collaboration to develop educational frameworks that address the interplay between AI and online safety and privacy.

By focusing on these key areas, young people can be empowered to shape AI development responsibly, ensuring a future where AI benefits all members of society.

Youth can shape the future of GenAI.

04 Global AI Policy and Regulatory Impact

The emergence of powerful new technologies such as Artificial Intelligence (AI), with a specific focus on Generative AI (GenAI), has posed a conundrum for governments around the world.

At the time of writing, there are two key schools of thought. The first contains those who see AI as a technology that has "the potential to escape our control and enslave or annihilate us" as posited by Yuval Noah Harari in his book *Nexus: A Brief History of Information Networks from the Stone Age to AI*. The other school of thought focuses on the potential exponential benefits of AI and GenAI.



For non-tech entrepreneurs, AI can level the playing field by providing tools that were previously only available to large corporations. This can lead to increased innovation and competition in technological advancements.

Thabo Mthembu, AI expert, Entrepreneur in Johannesburg and CEO of AI Horizons



For all the hype around AI, it is important to understand that it is not a stand-alone product. It can be seen as an enabler and a tool that can be used to assist in policymaking, especially in relation to opportunities for

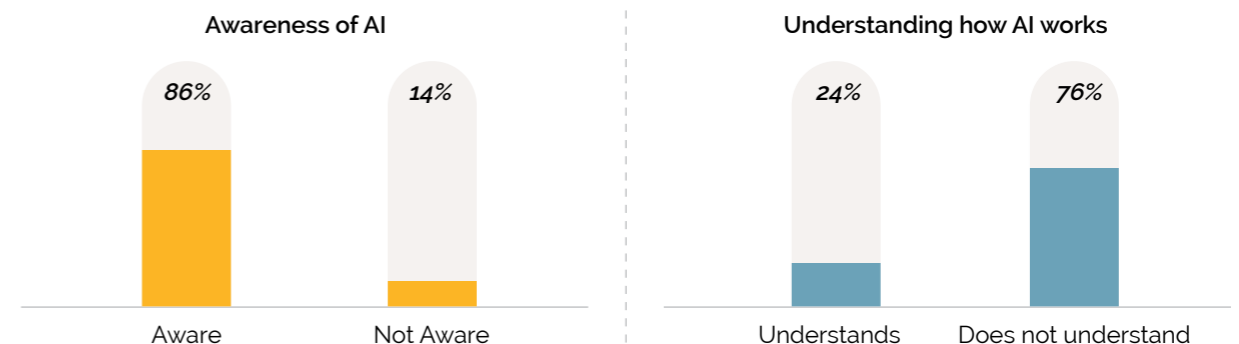
global collaboration with international actors interested in investing in AI in Africa.

One policy specialist, Scott Timcke of Research ICT Africa, says, "There is an uneasiness and uncertainty around experimenting with AI, as it's unclear how it can add value. While there is some experimentation, there is also a fear of rendering oneself or colleagues unemployed. Additionally, there is a skills gradient – those familiar with data science can use AI tools to help with data analysis, while others may have concerns about job displacement. These contradictions and uncertainties are present in any organisation."

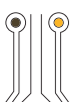
Governments around the world have taken different approaches. Some have created supportive policy environments to encourage innovation and investment in AI. This includes providing funding for AI research and development, establishing clear regulations around data privacy and AI ethics, and promoting AI literacy across all levels of education. Academia is key to advancing AI research and developing the next generation of AI talent.

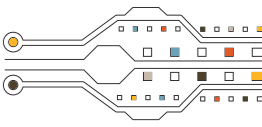
One of the biggest issues surrounding AI is a lack of understanding of the technology. While many are aware of AI at 86%, only 24% of global youth understand it. Fear and lack of knowledge are powerful inhibitors to growth and development.

Awareness and understanding of AI among youth



Source: Hogenhout & Takahashi (2022) *A Future with AI Voices of Global Youth*





According to Timcke, "We are witnessing industrial policy and state intervention in Europe, China, and the United States, each with their own regulatory models. China focuses on specific technologies. Europe regulates based on risk and conformity, and the US focuses on platform usage." In the global south, there

is a lack of regulatory environment, architecture and capacity, which leaves the space open for multinational corporations and relies on their ability to act ethically.

Some, like Microsoft, have put forward their own recommendations.

A five-point blueprint for governing AI



Source: Republic of South Africa Communications and Digital Technologies (2024) Minister Gungubele's Keynote Address at the National AI Government Summit 5 April 2024.

In August 2024, the African Union published the *Continental Artificial Intelligence Strategy: Harnessing AI for Africa's Development and Prosperity*. This strategy puts forward the AU's approach, which is guided by inclusive development aspirations and its core principles of ethics, inclusion, diversity, human rights and human dignity, people's well-being, peace and prosperity, and it prioritises the development and adaptation of AI systems to Africa's context.

African Union Continental AI Strategy

The AU Continental AI Strategy launched in July and was adopted by the AU member states during its 45th Ordinary Session in Ghana. It is a collaborative document embracing input from AU member states and positions AI for its "great potential for Africa's socio-economic transformation and cultural renaissance."

The strategy offers five key focus areas and fifteen policy recommendations. These include:

1. Harnessing AI's benefits for African people's institutions, the private sector and countries
2. Addressing the risks associated with the increasing use of AI
3. Accelerating AU Member States' capabilities in infrastructure
4. Fostering regional and international cooperation and partnerships to develop national and regional AI capabilities and advance Africa's position on the global stage
5. Stimulating public and private investment in AI at national and regional levels

Source: African Union (2024) *Continental Artificial Intelligence Strategy: Harnessing AI for Africa's Development and Prosperity*.

As seen at the 2024 AI Government Summit organised by the Department of Communication and Information Technologies (DCIT) and held at the University of Johannesburg in April, South Africa's approach is guided by the Presidential Commission on the Fourth Industrial Revolution (PC4IR).

The South African government's position, according to DCIT's Alfred Mashishi, is that "Government is the great equaliser."

Following is a table indicating the levels of existing research in Africa to date presented at the 2024 AI Government Summit.

Overview of existing research to date

Country/region	Impact on employment	Impact on productivity	Societal impact	Risks (including privacy)
Broader Africa	Limited research	Existence of headline reports such as <i>How is AI being utilized in Africa?</i> by Strathmore University	Existence of headline reports such as <i>State of AI in Africa</i> by AI Media Group	Limited research
Ghana	Limited research	Limited research	Limited research	Limited research
Kenya	Limited research	Existence of headline reports such as <i>AI in Kenya</i> by Paradigm Initiative.	Limited research	Existence of headline reports such as <i>AI in Kenya</i> by Paradigm Initiative.
Nigeria	Limited research	Existence of headline reports such as <i>AI for Economic Development in Nigeria</i> by Citris Policy Labs	Limited research	Existence of headline reports such as <i>AI for Economic Development in Nigeria</i> by Citris Policy Labs
South Africa	Reports such as <i>The Future of Work in South Africa</i> by McKinsey & Co (2019)	Limited research	Limited research	Limited research

Some coverage Extensive coverage

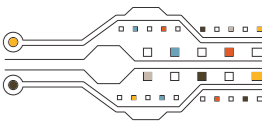
Mashishi indicated that there are four areas of focus: first, to focus on an AI that helps predictiveness and prioritisation of resources; second to bring in a technical diagnostic aspect to solve problems using AI; third is the automation of services to offer convenient service delivery; and fourth is to assist the planning process as an analytical tool.

To date, the AI policy in South Africa is still under development. Three countries in Africa have developed AI policies; these include Egypt, Mauritius and Rwanda. The areas seen as most important in the development of AI policy include regulation and frameworks around digital identity documents and biometrics, facial recognition systems, social media and content

takedown, click work, gig economies and foreign influences.

There are several donors seeking to fund AI maturity assessment frameworks. These frameworks seek to empower government to conduct evidence-based analysis on the level of AI maturity in different sectors in a country. There are currently initiatives underway to determine the level of AI maturity in Africa so that policies or strategies can be evidence-based and data-led.

Most of these areas involve ethical issues around AI and how governments view privacy, safety and integrity of public and individual data.



Ethical issues surrounding GenAI

There are a number of ethical concerns surrounding AI, such as the potential for AI to be biased or to be used for malicious purposes. These concerns need to be addressed to ensure that AI is used responsibly and ethically.

Ethical considerations, such as bias in AI algorithms and their potential impact on employment, also present challenges. Sources stress the importance of responsible AI use, ensuring fairness, transparency, and accountability in AI applications. This includes mitigating bias in training data, promoting diversity in AI development teams, and addressing concerns about job displacement through reskilling and upskilling initiatives.

Ethical and responsible AI

With powerful technologies, the risk of biases, lack of transparency and matters of social inequality are critical. This remains an issue across Africa, where protection of proprietary data, ensuring inclusivity and the applying ethical principles and rules to AI will be increasingly important in the future.

Areas such as Internet Service Provider (ISP) tracking, where an ISP monitors user online activity, and social media tracking, where platforms track user behaviour to share information with advertisers, or intelligence activities, are among the ethical issues facing those developing policies today.



Privacy is multidimensional and the major forms of privacy are informational, aesthetic, decisional and proprietary privacy.

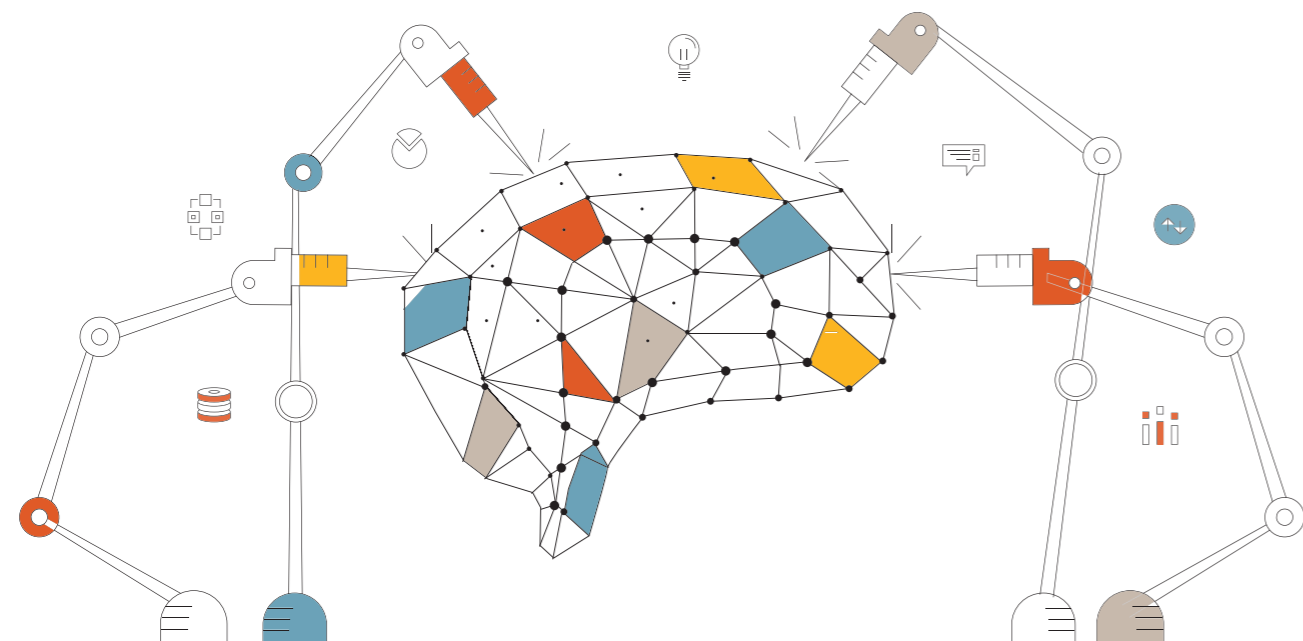
Centre for Intellectual Property and Information Technology Law (2023) The state of AI in Africa report 2023



While there are no easy solutions for the protection of privacy, these are areas that will require addressing in the near future for those using GenAI, developing AI models, and even those whose information or data may be unintentionally used for various reasons.

At this point in time, there is no perfect solution to policy frameworks and regulatory environments for GenAI. The technology is advancing so rapidly that any frameworks devised could easily be redundant in a matter of months, if not weeks or days.

While this policy is still in development, the key areas for government focus should be on infrastructure, forward-thinking frameworks to address data privacy, security and ethical AI use, and increased investment in AI research and development.



05 Key Learnings and Tips for Non-Tech Entrepreneurs

Embracing GenAI is part of the future for today's youth and non-tech entrepreneurs. This means having a beginner mindset, being willing to 'unlearn' and 'relearn,' and adopting new ways of working and doing things. GenAI forces a different level of interaction and approach to problem-solving.

As Kai Goodall, a young entrepreneur and technology enthusiast with multiple start-ups, says, "I see GenAI as my friend, my mentor, someone I go to for advice or assistance." Seeing GenAI as a friend and mentor can help alleviate fears of those who consider it intimidating or unapproachable.

Following are key insights and tips from entrepreneurs interviewed by AlFE that were presented at the 2024 South African Innovation Summit.

GenAI Key Insights for entrepreneurs and youth



Start small and focus on solving a business problem



Plug and play won't work



AI requires continuous learning and adoption



AI needs to be trained on large data sets to be effective



Early adopters have a competitive advantage



Auditing AI models is critical

Tips for non-tech entrepreneurs



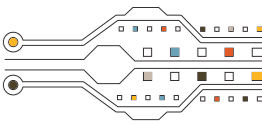
Embrace a learning mindset. Familiarise yourself with the basics of AI, its potential applications in your industry, and available tools. Online courses, webinars, books, and industry events offer readily accessible learning avenues.

Start small, scale gradually. Begin with small, manageable AI projects to test the waters and gradually integrate AI into your operations. Identify specific problems AI can solve, experiment with different solutions, and learn from the outcomes.

Strategic partnerships are key. Collaborate with AI experts, consultants, or firms specialising in AI solutions. Their expertise can guide you through implementation, data management, and navigating ethical considerations, particularly if you lack technical expertise.

Data is your ally. Focus on collecting, organising, and ensuring the quality of your data. High-quality, relevant data is essential for training AI models effectively and generating meaningful insights. Implement data governance frameworks for systematic management.

Champion ethical AI use. Prioritise ethical considerations, including data privacy, transparency, and bias mitigation. Understand and comply with relevant data protection regulations and ensure that your AI applications are fair and unbiased.



Tips for governments and policymakers



Bridge the infrastructure gap. Prioritise investments in expanding high-speed internet connectivity, particularly in underserved and rural areas. Promote affordable and reliable cloud computing services to facilitate access to the computational power required for AI.

Develop robust AI policy frameworks. Establish comprehensive and forward-thinking policies addressing data privacy, ethical AI use, and support for AI innovation. Encourage stakeholder engagement (industry experts, researchers, civil society) in the policy development process.

Facilitate resource access. Support start-ups and small businesses by creating mechanisms to access funding opportunities, relevant datasets, and technical expertise. Public-private partnerships can be instrumental in pooling resources and driving advancements.

Invest in skills development. Address the skills gap by incorporating AI and data science into educational curricula at all levels and providing upskilling and reskilling opportunities for the existing workforce. Attract and retain AI talent through incentives and immigration policies.

Tips for general users



Cultivate continuous learning. Stay updated on AI advancements through industry events, online resources, publications, and engagement with the AI community. The field is rapidly evolving, and continuous learning is crucial for staying ahead of the curve.

Promote AI literacy and awareness. Educate the public about the potential benefits, risks, and ethical implications of AI. Encourage informed discussions about AI's impact on society and address concerns related to job displacement and bias.

Foster a culture of collaboration: Collaboration between governments, academia, industry, and entrepreneurs is essential for creating a thriving AI ecosystem. Encourage knowledge sharing, joint research projects, and partnerships to accelerate innovation and address shared challenges.

Staying updated on AI developments

The entrepreneurs that AlfE interviewed during this research all emphasised that a multifaceted approach combining different learning and networking activities is the best way to stay updated on AI developments. These include:



Industry events. Attending industry conferences, workshops, and networking events is crucial for staying informed about the latest trends, research breakthroughs, and practical applications of AI. These events offer opportunities to learn from experts, connect with peers, and share experiences.



Online resources and publications. Regularly following AI-related blogs, news sites, research journals, and online publications is essential for staying abreast of advancements in the field. These platforms provide a mix of technical insights, practical applications, and industry news.



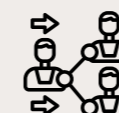
Online courses and webinars. Participating in online courses, webinars, and certifications offered by platforms like Coursera and edX allows for deeper learning and skills development in specific areas of AI. These resources provide structured learning experiences and often cover both theoretical concepts and practical applications.



Social media and online communities. Following key influencers, researchers, and organisations in the AI space on social media platforms like X and LinkedIn helps track ongoing discussions and emerging trends. Engaging with AI communities on platforms like Reddit and LinkedIn can also provide valuable insights and networking opportunities.



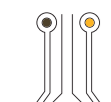
Collaboration and knowledge sharing. Collaborating with academic institutions, participating in joint research projects, and engaging in internal knowledge-sharing workshops and training sessions are effective ways to stay updated on the latest AI advancements and best practices.

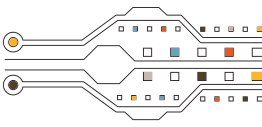


Internal training and knowledge sharing. Some organisations have dedicated individuals or teams responsible for monitoring AI advancements and sharing relevant findings and updates with the rest of the organisation. This ensures that everyone stays informed about the latest technologies and best practices.



By heeding these learnings and embracing a proactive and collaborative approach, individuals, businesses, and policymakers in Africa can harness the transformative power of AI to drive innovation, economic growth, and societal well-being.





06 Recommendations and Conclusions

The future of AI holds immense potential for non-tech entrepreneurs and youth. As AI technology becomes more accessible and affordable, it will level the playing field, allowing small businesses to compete in the global landscape. Non-tech entrepreneurs will be able to harness AI to optimise their operations, improve customer experience and drive innovation.

Recommendations

1 Build the infrastructure and resources needed for tomorrow's technologies

According to Gugu Motsoenene of Ecosmart in South Africa and Ghana, "African countries are making investments in infrastructure, but high-speed internet is not uniformly available in rural areas. There needs to be a concerted effort to enhance connectivity across the board."

Many start-ups and small businesses struggle to access the necessary resources such as funding, data and technical expertise. Governments and private sector players need to establish funding programmes specifically aimed at AI development.

Public-private partnership can also play a significant role in providing required resources. Creating AI research hubs and centres can help to consolidate efforts and provide shared resources that start-ups and small businesses can use.

2 Enhance digital literacy and basic AI skills

It is important to focus on learning the basics and to work closely with tech experts to embrace a culture of continuous learning. Non-tech entrepreneurs should familiarise themselves with the basics of AI through online courses, webinars and reading materials.

Investments in STEM education, upskilling programmes for current workers and incentives for businesses to adopt AI are crucial steps in bridging these gaps. Addressing the skills gap includes incorporating AI and

data science into educational curricula at all levels and providing upskilling and reskilling opportunities for the existing workforce.

In terms of attracting and retaining AI talent through incentives and immigration policies, engaging in hands-on projects and internships to gain practical experience will be crucial.

3 Foster innovation and collaboration, and build policy frameworks

Creating a vibrant ecosystem that fosters innovation and collaboration is vital. This can be achieved by supporting tech hubs, incubators and accelerators that nurture start-ups and encourage entrepreneurial ventures that make use of AI.

There is a need for a clearer, more comprehensive policy that supports AI research and development. These policies should include incentives for companies investing in AI technologies and protections for intellectual property. In addition, fostering a start-up ecosystem and viable funding model will assist AI-oriented start-ups.

4 Embrace an inclusive ecosystem approach

Understanding the basics of AI and its potential impact can help create a more informed public that is supportive of AI initiatives, leading to more citizen-centric solutions. Building a culture of inclusive collaboration and knowledge sharing is vital in leveraging AI effectively.

An inclusive ecosystem can ensure that all members stay up to date with the latest developments. GenAI is evolving so quickly that staying abreast of new developments requires continuous learning, engaging and trial, and a collective ecosystem sharing knowledge and best practice will lend itself to this.

5 Address issues of AI ethics and bias

Champion ethical AI use by prioritising ethical considerations, including data privacy, transparency, and bias mitigation. Understand and comply with relevant data protection regulations and ensure that AI applications are fair and unbiased.

6 Develop an AI adoption and social impact measurement tool

NPO AfriLink data analyst Kevin Jones in Kenya says, "By supporting AI adoption, we aim to enhance the social and economic wellbeing of communities. We measure ROI by evaluating the positive change in employment and income levels, and quality of life from AI-driven entrepreneurial activities."

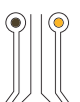
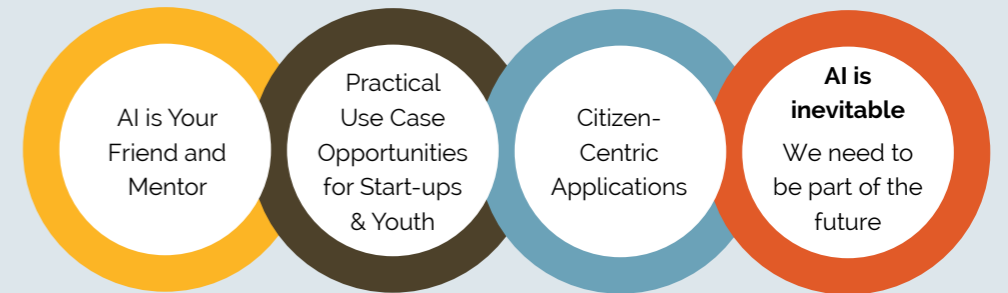
By supporting AI adoption, the social and economic well-being of communities can be enhanced. GenAI can be leveraged as a tool by civil society organisations to ensure that the technology is inclusive, transparent, ethical and contributes positively to people's lives.

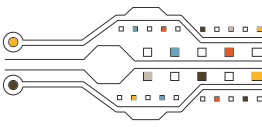


Conclusion

The future of GenAI holds immense potential for non-tech entrepreneurs and youth. As AI technology becomes more accessible and affordable, the playing field will level out, allowing small businesses to compete in the global landscape. Non-tech entrepreneurs will be able to harness AI to optimise their operations, improve customer experience and drive innovation.

A lack of relevant skills is perhaps one of the most significant barriers to AI adoption. While there are talented individuals across Africa, substantial investments in education and training are crucial in order to address this barrier. To create a broad base of support for AI, it is important to enhance digital literacy across Africa.





Appendices

Appendix I – Interview List and References

Interview List

Name	Job title	Company	Country
Alex Moyo	Founder & CEO	Web Devs	Zimbabwe
Gugulethu Motsoenene	CEO	EcoSmart	Ghana & South Africa
Thabo Mthembu	CEO	AI Horizons	South Africa
Mvelo Hlophe	Founder & CEO	Zaio	South Africa
Ellen Kwenda	Entrepreneur	AgroAI Solutions	Kenya
Antonio Araujo	Senior Manager	A TYLin Company	Brazil
Kevin Jones	Data Analyst	AFRILINK	Kenya
Dr Scott Timcke	Senior Research Associate	ResearchICT Africa	South Africa
Olamide Goriola	Founder & Head Machine Learning Engineer	Convergence AI	Nigeria
Kai Goodall	Entrepreneur & Electrical Engineer	Rorschach Innovation Services	South Africa
Carlton Ndlovu	Entrepreneur & Dynamic Software Engineer	Rorschach Innovation Services	South Africa

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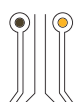
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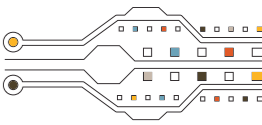
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Appendix II: AI4E Recommended 10 Best Free AI Courses for Beginners and Advanced to Kickstart Your Learning Journey

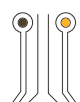
Beginner Courses

Organisation	Course	Description
	Introduction to Artificial Intelligence	This course provides a foundational understanding of AI, covering key concepts, algorithms, and applications. https://cloud.google.com/learn/training/machinelearning-ai
	AI for Everyone	A beginner-friendly course designed to introduce AI concepts to a broad audience. https://www.coursera.org/learn/ai-for-everyone
	AI Foundations	A series of courses covering AI fundamentals, including machine learning, deep learning, and cognitive computing. https://www.coursera.org/specialisations/ai-foundations-for-everyone

Organisation	Course	Description
	AI for Business Professionals	A course tailored for business professionals, exploring how AI can be applied to various industries. https://www.edx.org/learn/artificial-intelligence
	Introduction to Artificial Intelligence	A hands-on course introducing AI concepts and practical applications. https://www.udacity.com/school/artificial-intelligence
	Introduction to Artificial Intelligence	A course from MIT covering AI concepts and techniques. https://ocw.mit.edu/

Intermediate and Advanced AI Courses

Organisation	Course	Description
	Machine Learning Course	A comprehensive course on machine learning, including supervised and unsupervised learning techniques. https://www.coursera.org/browse/data-science/machine-learning
	Deep Learning Specialisation	A series of courses diving deep into deep learning, covering neural networks, computer vision, and natural language processing. https://www.coursera.org/specialisations/deep-learning
	AI Nanodegree Programme	A comprehensive programme offering in-depth knowledge of AI, including machine learning, deep learning, and natural language processing. https://www.udacity.com/
	Natural Language Processing Specialisation	A specialisation focusing on natural language processing techniques and applications. https://www.coursera.org/specialisations/natural-language-processing
	Computer Vision Specialisation	A specialisation covering computer vision algorithms and applications. https://www.coursera.org/specialisations/computer-vision
	Introduction to Artificial Intelligence	A free online course focusing on practical deep learning applications. https://www.fast.ai/



2024 AIfE GenAI List of Tools

GRAPHIC DESIGN AND ART		
DALL-E 3 (OpenAI)	Generates detailed, high-quality images from text prompts. Ideal for quick concept visualisations.	https://openai.com/index/dall-e-3/
Midjourney	Focuses on artistic and stylised image creation, often used for concept art and social media content.	https://www.midjourney.com/home
NightCafe Studio	Allows for customisation in creating images in diverse art styles, suitable for unique, stylised visuals.	https://creator.nightcafe.studio/
Artbreeder	Blends images to create new variations, commonly used for character design and abstract art.	https://www.artbreeder.com/
Adobe Firefly	Adobe's AI suite integrates directly into Photoshop and Illustrator for image manipulation and enhancements.	https://www.adobe.com/sensei/generative-ai
WRITING AND MARKETING CONTENT		
Jasper	Assists with marketing content, blog posts, and social media writing. Known for tone and style customisation.	https://www.jasper.ai/
Copy.ai	Generates marketing and ad copy, helping streamline content for email and social media campaigns.	https://www.copy.ai/
Anyword	Tailors content to different audiences, useful for personalized ads and sales copy.	https://www.anyword.com/
Writesonic	Provides various text-generation options for articles, blogs, and even SEO-optimised content.	https://writesonic.com/
ChatGPT (OpenAI)	Versatile tool for general content creation, editing, and conversation-based brainstorming.	https://chatgpt.com/
VIDEO AND AUDIO CREATION		
Runway	Enables video editing and creation with AI, including object removal and text-to-video features.	https://runwayml.com/
Synthesia	Creates video avatars for personalised video content, especially popular for tutorials and presentations.	https://www.synthesia.io/
ElevenLabs	Text-to-speech software with a wide range of customisable voices for audio content.	https://elevenlabs.io/
Descript	Video and audio editing tool that transcribes, edits, and synthesises voice and video.	https://www.descript.com/
Soundraw	Music generation tool that produces custom tracks for different moods and genres.	https://soundraw.io/
PRESENTATION AND WEB DESIGN		
Beautiful.ai	Creates visually appealing slide presentations by automating design elements based on input content.	https://www.beautiful.ai/
Tome	Integrates data with storytelling to create presentations that incorporate analytics and visuals.	https://tome.app/
Canva AI	Canva's suite for easy presentation and web design, with AI-generated templates and design suggestions.	https://www.canva.com/
Wix ADI	Uses AI to design websites based on user preferences, ideal for small businesses.	https://www.wix.com/
Framer AI	An AI-centric web-building platform designed to simplify website development for non-coders.	https://www.framer.com/
BUSINESS AND FINANCE APPLICATIONS		
ThoughtSpot	AI-driven analytics platform that generates insights from business data, valuable for finance teams.	https://www.thoughtspot.com/
Kensho (S&P Global)	Analyses financial data for insights, popular in investment analysis.	https://kensho.com/
ChatGPT Enterprise	Provides enterprise-grade AI capabilities, including financial data analysis and reporting.	https://openai.com/chatgpt/enterprise/
AlphaSense	Search tool for financial data, combining AI and analytics to provide investment insights.	https://www.alpha-sense.com/
Wizeline	Supports business analytics and insights with AI solutions tailored to enterprise needs.	https://www.wizeline.com/

About AIfE

The AIfE (African Institute for Entrepreneurship) is a not-for-profit research and thought leadership organisation, established to focus on the entrepreneurship opportunities generated by new industries and technology on a broad strategic basis.

The institute is committed to providing research that opens up opportunities for entrepreneurs, contributes to the development of new industries, improves the socio-economic framework with new models of inclusive economic growth, and contributes to policy and development.


AIfE's service offerings include research, thought leadership sessions and ecosystem development for small, micro and medium enterprises (SMMEs) and small and growing businesses (SGBs), industry experts, entrepreneurs, academic institutions, government departments, business practitioners, business institutions and others.

AIfE's values are encompassed in the United Nations Sustainable Development Goals (UNSDGs), SDG4 Quality education, SDG5 Gender equality, SDG8 Decent work and economic growth, SDG9 Industry, innovation and infrastructure, SDG 10 Reduced inequalities, and SDG17 Partnerships for the goals.


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