

MINISTRY OF ICT & NATIONAL GUIDANCE

A Knowledge and Productive Society driven by ICT & National Ideology

DEVELOPING A FRAMEWORK FOR ETHICAL AI

ROADMAP OPTIONS FOR UGANDA

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EXECUTIVE SUMMARY

This report sets out a foundational framework for AI Ethics in Uganda. It has been prepared in collaboration with national stakeholders and with a strong focus on developing a framework for Uganda that reflects the essence of the Ugandan culture, history, and social norms.

The regulation of AI and the development of appropriate frameworks to ensure the ethical application of AI technologies to support humanity is at an embryonic state across all nations. No jurisdiction, at the time of writing, has implemented a template model that is universally applicable to all contexts of use, contexts of culture, or realities of social and technological maturity.

Uganda, therefore, has a unique opportunity to learn from the steps and missteps of others while developing an approach to the ethics of Artificial Intelligence and related technologies that supports the development of society, promotes social cohesion, empowers individuals and communities, and reflects the ethics of Ugandan society. This must be achieved in a manner that enables cooperation and interoperability with other regional and international approaches without diluting the essence of Uganda's culture and heritage.

This report provides 9 Foundational and 34 Guiding principles, which are interconnected and interdependent, enabling and enhancing each other. Therefore, they should be implemented mutually and applied throughout the AI system's life cycle. The report also sets out three potential pathways for the implementation of an Ethical Framework for AI in Uganda. It is acknowledged that the final decision on which path to follow is for Uganda, and we would expect a fourth path to evolve, informed by this analysis but reflecting the ethos and practical considerations of implementation in Uganda.

It is important to note that the introduction of any new and disruptive technology is as much a social project as it is a technical initiative, and as such the embedding of ethical principles for AI will require a broad approach to ensure effectiveness and sustainability in a manner that ensures alignment of the Ethic of the Individual, the Ethic of the Organisation, and the Ethic of Society

SUMMARY OF ANALYSIS

The report is informed by the long-term national development policy frameworks and builds on the legislative, policy and ecosystem mapping around the development and use of AI technology in Uganda [1] and previous research and activities by UN Global Pulse conducted throughout 2019-2022 [2].

The recommendations contained in this report have been developed based on:

- Desk review of existing and emerging regula tory frameworks and ethics implementation frameworks for AI and Machine Learning, including UN Secretary-General's Roadmap for Digital Cooperation [3], UNESCO Recommendations on the Ethics of AI [4] and work in other international fora, such as the Global Privacy Assembly (GPA), Council of Europe (CoE), European Union (EU), Organisation for Economic Co-operation and Development (OECD). Desk review also scanned relevant high-level expert group reports and recently adopted AI national strategies in Africa and worldwide;
- A series of workshops and in-depth interviews with various national stakeholders, including representatives of 4IR task force, Ministry of ICT and National Guidance (MoICT&NG) and leading African experts in the field of AI governance;
- Survey on prioritisation and clustering of AI ethical principles, implementation toolbox and regulatory models relevant to Uganda.

An initial draft of the report was communicated for feedback to representatives of MoCD and DPC and discussed during the validation workshop before finalisation, taking the feedback into account.

Our analysis has identified:

- **9 Foundational Principles**;
- **34 Guiding Principles** for AI Ethics;
- **6 Focus Areas** for Policy Interventions addressing Ethics from three perspectives;
- **3 potential Pathways** for AI Ethics in Uganda, from which Uganda can choose the best approach for Uganda;
- **10 Common Actions** supporting these pathways.

FOUNDATIONAL PRINCIPLES OF ETHICS FOR ARTIFICIAL INTELLIGENCE

This report sets out 9 Foundational Principles of Ethics for Artificial Intelligence. Each of these Principles reflects one or more attributes of ethical conduct, or Guiding Principles, which should be respected in the implementation of AI systems.

1. Human Centeredness

Human dignity constitutes the foundation for the universal, inalienable, interdependent, and interrelated system of human rights and fundamental freedoms. Therefore, AI systems throughout their life cycle should follow a human-centric and inclusive approach, ensure respect for human dignity, fundamental freedoms, autonomy and provide meaningful opportunities of full and effective self-determination.

2. Transparency and explainability

Transparency is crucial for building trust in AI systems. Therefore, AI systems throughout their life cycle should be accessible, and traceable. Humans should be informed when interacting with AI. The system's capabilities and impact on fundamental freedoms should be openly communicated, and the AI decision-making process and outcomes should be explainable to those directly and indirectly affected.

3. Safety, Privacy, and Security

No human being, group or society at large should be harmed by AI. AI systems should be developed with a preventative approach to risk management and be secure and safe throughout their entire life cycle. Further, AI actors should ensure that personal data protection and privacy, as fundamental human rights, are respected and guaranteed throughout the life cycle of AI systems.

4. Robustness and Quality

AI actors should ensure use of high-quality input data, truthful, proportionate in relation to the legitimate purposes pursued, and robust AI systems throughout their life cycle. Outcomes of AI systems should be regularly validated as part of the quality process. An explicit and well-formed development and evaluation process should ensure the accuracy, reliability and reproducibility of the AI systems.

5. Fairness and non-discrimination

AI actors must establish and maintain an inclusive approach to ensure that outcomes of AI systems are fair and non-discriminative, and include equal and just distribution of benefits. Such an approach should take into consideration the widest range of individuals and groups including children, gender, marginalized and vulnerable people, as well as cultural systems.

6. Responsibility and Accountability

AI actors should be responsible and liable for the proper functioning of AI systems and for the respect of the ethical principles and legal obligations based on their roles, the context, and consistent with the state of art and in accordance with applicable national and international law. Appropriate governance structures, risk management and monitoring mechanisms should be in place to ensure accountability for AI systems and their impact throughout their life cycle.

7. Adaptive Governance & Multi- stakeholder Collaboration

Multi-stakeholder participation in AI governance should be ensured, and take cognizance of applicable international law and other human rights norms and standards, and collaboration should be encouraged. Such collaboration may, for instance, take the form of including through the adoption of open standards and interoperability frameworks and sharing of best practices. Further, measures should be developed to ensure agile policy and regulatory interventions to address shifts in technologies and their impact on fundamental human rights.

8. Awareness and Literacy

Public awareness and understanding of AI systems and their impact on human rights and fundamental freedoms should be promoted by various stakeholders through open and accessible education, civic engagement, digital skills and AI ethics training, media literacy, considering the linguistic, social and cultural diversities, to ensure trust and effective public participation and informed decision-making about the use of AI systems.

9. Sustainability

AI systems should foster the development of a sustainable society and positively impact the economy and digital transformation, while enhancing individual and societal well-being and protecting the environment. To foster resilient and sustainable development in Uganda, the continuous assessment of AI systems' human, social, cultural, economic, and environmental impact should be carried out, and appropriate mitigation and/or prevention measures should be taken to address adverse impacts, including on future generations.

RECOMMENDATIONS

We recommend three potential pathways for Uganda to consider in the finalisation of their AI Ethics Framework. These are layed out with a consideration of their benefits and the likely areas of investment that will be required to bring these pathways to fruition.

The implementation of an AI Ethics Framework will need to address ethics at different levels. It must address the Ethic of Society, the Ethic of Organisation, and the Ethic of Individuals to ensure that the implementation of AI solutions is trusted, trustworthy, and beneficial to society.

Doing so will require policy interventions, initiatives, and investments to address:

- **Data Literacy and Digital Competence,** in terms of specific AI skills, the development of AI Ethics competences, data management knowledge, skills, and awareness in Ugandan society;
- **Sectoral Self-Regulation** to guide appropriate action in the absence of, or in anticipation of, statutory controls;
- **Standards and Certification Schemes** to provide objective and transparent benchmarks for organisations and processes to be assessed against;
- **Statutory Regulation and Enforcement** to codify the Ethic of Society, and in particular to address sectoral requirements for enforceable safeguards and controls on the use of AI and associated technologies through appropriately skilled and resourced Regulatory Authorities;
- **Regulatory Sandbox** initiatives, similar to those already adopted in the Financial Services Sector, to support responsible innovation and timely evolution of governance and legislation to ensure safeguards and balancing of competing rights and interests.
- **A Data and AI Ethics Board** to develop an independent, neutral research entity that can support industry, regulators, and policy makers in the implementation and evolution of a Ugandan Framework for AI Ethics and wider ethical issues in data management, where appropriate.

Each Pathway we have identified addresses these areas from the three ethical perspectives outlined. This provides a basis for a holistic framework for AI Ethics in Uganda. These Pathways are described in detail later in this document.

PATHWAY 1:
Centralised- Statutory

This pathway presents a centralised perspective with primary reliance on statutory measures and formalised legislative instruments to give effect to ethical principles for AI. It requires the establishment of a single regulatory body, or the extension of the scope of an existing body, to provide oversight and enforcement.

PATHWAY 2:
Decentralised-Statutory

The regulatory framework in this Pathway is decentralized, with statutory regulation being implemented through the amendment of existing sectoral legislation with enforcement being undertaken by relevant sectoral regulators. The prioritisation of sectoral interventions in this Pathway will need to be carried out in line with and in support of the prioritized outcomes of a defined AI Strategy.

PATHWAY 3:
Federated - Evolutionary

In this potential Pathway to AI Ethics Regulation, the emphasis is placed on a federated co-regulatory model that is supported by the development of codes of conduct and sectoral standards which serve to establish a standard of care for the design and implementation of AI systems.

The emphasis in this Pathway is initially less on the implementation of statutory measures but emphasizes the development of co-regulatory model emphasising codes of conduct, regulatory guidance, and the development of standards, grounded on the core AI Ethics principles, with statutory regulation developing in tandem to address issues and areas where there is common agreement that statutory codification of norms is required or, alternatively, where there is a requirement for sectoral regulation in particular contexts.

The use of Regulatory Sandboxes to evaluate proposed use cases or applications of AI, and to identify the required safeguards in terms of guidance, codes of conduct, or legislative change will be a key component of this Federated Evolutionary pathway. Sandboxes should be implemented based on key themes from the AI Strategy for Uganda.

COMMON ACTIONS

While multiple pathways have been identified, there are actions and initiatives that are common to all, and which would be necessary for any adapted pathway that Uganda may develop based on this initial framework. These recommended common actions are described in more detail later in this document.

RECOMMENDATION 1:
Developing National AI strategy

There must be a clear statement of government strategy in terms of social value, societal unity, and social impact arising from the use of artificial intelligence and other data-driven technologies. The development of the national AI strategy should build upon previous endeavours in this area, namely the Ethical AI Strategy Blueprint developed by the Ministry of ICT and National Guidance within input from the 4IR Task Force with the support of UN Global Pulse.

RECOMMENDATION 2:
Investing in AI literacy and research

Uganda should strive to build the capacity to deliver the ideas, technologies, and workforce of the future by providing training and supporting multi-disciplinary teams. Research about public perception of AI, professional conversations, and public consultation could lead to the co-creation of AI policies, standards and best practices.

Within this, it should be borne in mind that AI literacy must be built on foundations of general data literacy and digital competence in less novel areas of data management.

RECOMMENDATION 3:
Developing AI talent in Uganda

The national educational system needs to be adapted to new realities and strive to fill compe-tence shortages. Through the partnership of na-tional and international experts, professional programs and courses should be developed to build a new generation of AI leaders not only for Uganda, but also targeting African and Global la-bour market Training curriculums should not be limited to technology. They should enable a new workforce of self-determined individuals who know how to deal with both the technical as well as the ethical, societal and legal aspects of AI.

RECOMMENDATION 4:
Strengthening national regulators

Existing Regulatory Authorities should be provided with sufficient resources and technical capacities to effectively oversee legally enforceable AI principles within their mandates. Close cooperation between regulators is essential to deliver common approaches and jointly address possible regulatory overlaps.

RECOMMENDATION 5:
Developing ethical framework guides and self-assessment tools

Guides and assessment tools should help AI actors identify AI system elements that require further effort to be compliant with ethical principles and suggest the kind of active measures needed to avoid and minimize those risks.

RECOMMENDATION 6:
Active participation in International and Regional Fora

Active participation in international and regional fora will enable Uganda to swiftly adapt and modernise its legal, ethical and regulatory frameworks ensuring that AI systems do not undermine the societal values and fundamental freedoms enshrined in the constitution.

RECOMMENDATION 7:
Developing a Regulatory Sandbox Model

Uganda should consider the development of a thematic Regulatory Sandbox, aligned to the priorities of an AI Strategy, to support the evaluation of potential AI processes, the evolution of AI ethics principles, and the education of developers, regulators, and other stakeholders on the benefits and risks associated with the implementation of AI solutions.

RECOMMENDATION 8:
Exploring the use of AI

For developing further policy and regulatory frameworks or incentives for businesses, including start-ups, it is crucial to understand the extent to which AI is used in various sectors and new dynamics.

RECOMMENDATION 9:
Investing in Social Education and Digital Competence to support Trust in AI.

The evolution of the Ethic of Society will require investment in social education and the development of awareness of the benefits of AI, how it works (in simple terms), and the potential issues and risks that communities will need to consider in the adoption of AI as well as the potential impacts to social norms that will arise from disruptive technologies.

RECOMMENDATION 10:
Establishing Data and AI Ethics Board

Uganda should establish a Data and AI Ethics Council to act as a "steward" of the AI Ethics Principles and to advise and co-ordinate independent research across academia and industry into best practices and standards for the ethical application of data and AI technologies to benefit society.

The Data and AI Ethics Council will support Regulators, the Standards Authority, and policy makers through the provision of independent and unbiased expertise and insights. It may also offer support and advisory to the Regulatory Sandboxes.

CONCLUSIONS

No country or jurisdiction has, as of now, fully implemented a framework for the effective governance and regulation of ethical conduct in the development and implementation of Artificial Intelligence and associated technologies.

Uganda has the opportunity to define and develop a framework and approach that is grounded on the Ethic of Ugandan Society. Uganda does not need to follow an existing path but can embrace this opportunity to make a new trail.

1

INTRODUCTION

Artificial intelligence presents huge opportunities for the achievement of national priorities and human welfare. On the other hand, legitimate concerns remain about the potentially damaging effects that emerging technologies and big data can have on fundamental human rights.

Uganda is active in the United Nations (UN) and its specialized agencies, the World Trade Organization (WTO), World Bank, and Commonwealth of Nations. Uganda is a party to key human rights instruments and has strong national institutions to support democracy, the rule of law, and human rights and fundamental freedoms, including but not limited to respect for human dignity and the right to privacy enshrined in Uganda's Constitution of 1995[5]. Along with the strong commitment to the Sustainable Development Goals (SDGs), with the National Development Plan III[6], Digital Uganda Vision[7], Uganda National Fourth Industrial Revolution Strategy[8] and other national policies as well as strategies, Uganda seeks to achieve the goals of universal inclusion, sustainable development, economic progress and poverty eradication through digital innovation combining initiatives across multiple sectors.

As outlined in Uganda's National 4IR Strategy, Uganda has the opportunity to become a leading global player in harnessing 4IR applications to solve its development challenges with a concerted effort and a strategic focus on its areas of competitive advantage. This will require Uganda to take a proactive rather than reactive approach to creating opportunities and managing risks inherent in this new 4IR world. This must include the fostering of trust in AI technology in order to attract greater economic opportunity for Uganda domestically and internationally through the implementation of human rights protecting governance frameworks.

The National 4IR Strategy recognises the potential of AI to be used for the public good and contribute to resilient and sustainable development, economic growth, greater inclusion, effective and efficient service delivery across the private and public sectors. Significant considerations should be given to societal implications and ethical concerns, including the biases AI can embed, potentially resulting in discrimination, inequality and exclusion. However, addressing risks and ethical concerns should not hamper innovation and development but rather provide new opportunities and stimulate innovation that anchors AI technologies in human rights, fundamental freedoms, and societal values.

The Government of Uganda therefore explores opportunities to develop an ethical AI governance framework to promote responsible use of AI while ensuring respect for human rights and democratic values. This effort is led by the Ministry of ICT and National Guidance with input from the 4IR Taskforce with the support of the United Nations Global Pulse. One of the objectives of UN Global Pulse assistance encompassed developing a Road Map, a guiding document for the development of an ethical AI Framework for Uganda.
Uganda has a unique opportunity to shape ethical AI development for transformation by maximising the benefits of AI systems while at the same time preventing and minimising the risks. Nevertheless, the development of foundational ethical principles for Artificial Intelligence in Uganda cannot take place in a vacuum. They must be grounded on the nation's accepted value system and be consistent with international standards and best practices. It is essential that the principles, the regulatory frameworks, and implementation approaches that are developed to give effect to these principles also recognise the interconnectedness of African people in the context of how data that is about them or may affect them will be processed by technology systems.

The regulation of AI and the development of appropriate frameworks to ensure the ethical application of AI technologies to support humanity is at an embryonic state across all nations. No jurisdiction, at the time of writing, has implemented a template model that is universally applicable to all contexts of use, contexts of culture, or realities of social and technological maturity. Uganda, therefore, has a unique opportunity to learn from the steps and missteps of others while developing an approach to the ethics of Artificial Intelligence and related technologies that supports the development of society, promotes social cohesion, empowers individuals and communities, and reflects the ethics of Ugandan society. This must be achieved in a manner that enables cooperation and interoperability with other regional and international approaches without diluting the essence of Uganda's culture and heritage.

The definition of principles, the development of regulatory structures, and the design of the supporting implementation framework should support the development of aligned and complementary approaches to the ethical use of AI and other data-intensive technologies. There is a need to accommodate differences of emphasis on different ethical values between diverse cultures in society while at the same time enabling an appropriate balance to be struck between the adoption of and innovation with technology and the protection of the rights and freedoms of individuals.

Accordingly, there must be a clear statement of government strategy in terms of social value, societal unity, and social impact arising from the use of artificial intelligence and other data-driven technologies.

2

OVERVIEW OF METHODOLOGY AND ANALYSIS

The report is informed by the long-term national development policy frameworks and builds on the legislative, policy and ecosystem mapping around the development and use of AI technology in Uganda commissioned by UN Global Pulse in 2019-2021.

The recommendations contained in this report have been developed based on:

- **Desk review** of existing and emerging regulatory frameworks and ethics implementation frameworks for AI and Machine Learning, including UN Secretary-General's Roadmap for Digital Cooperation[9], UNESCO Recommendations on the Ethics of AI[10] and work in other international fora, such as the Global Privacy Assembly (GPA), Council of Europe (CoE), European Union (EU), Organisation for Economic Co-operation and Development (OECD). Desk review also scanned relevant high-level expert group reports and recently adopted AI national strategies in Africa and worldwide;

- **A series of workshops and in-depth interviews** with various national stakeholders, including representatives of the 4IR task force, Ministry of ICT and National Guidance (MoICT&NG) and leading African experts in the field of AI governance;

- **Survey on prioritisation and clustering** of AI ethical principles;

3

FOUNDATIONAL ETHICAL PRINCIPLES FOR ARTIFICIAL INTELLIGENCE IN UGANDA

AI systems have profound implications for individuals, societies, and organisations as "they influence human-technology relations in both beneficial and harmful ways." [11] The autonomous decision-making by AI systems raises the question of who should bear the moral or legal responsibilities for decisions made by the algorithm and the need for responsible stewardship of trustworthy AI.

To respond to societal fears and address the ethical implications of AI, many countries, organisations and groups have already adopted or are articulating AI ethical principles, strategies and guidelines. Some of them are even titled as Trustworthy AI [12], Responsible AI [13], Explainable AI [14] or Human-centric AI [15] to demonstrate the values and approaches that guided the development of such principles.

Based on the international, regional, and national best practices, including UN work on ethical AI, UNESCO Recommendation on the ethics of artificial intelligence, Ethics Guidelines for Trustworthy AI developed by the High-Level Expert Group on Artificial Intelligence set by the European Commission [16]. This report identifies relevant ethical principles. The rationale of these principles for Uganda, proposed simplified definitions, and way of clustering was discussed with national stakeholders. Accordingly, the selection of principles presented in this report is informed by national stakeholders interviewed and surveyed.

It should also be noted that, as proposed principles are inspired mainly by human rights instruments, many of them are enshrined in Uganda's Constitution 1995 and are well-established by Electronic Transactions Act 2011 and Data Protection and Privacy Act 2019. Therefore, even though some principles are legally enforceable in Uganda, AI ethical framework "can help provide more fine-grained guidance when seeking to identify what we should do rather than what we (currently) can do with technology [17]."

This report sets out 9 foundational principles of ethics for Artificial Intelligence and 34 guiding principles, which are human-centric, value-based, and complementary. These principles are interconnected and interdependent, enabling and enhancing each other. Therefore, they should be implemented mutually and applied throughout the AI system's life cycle from research, design and development to deployment and use, including maintenance, operation, trade, financing, monitoring and evaluation, validation, end-of-use, disassembly and termination [18]. Nevertheless, some guiding principles might not be relevant in a particular context or there might be a tension between some principles. In such cases, a contextual assessment will be necessary to manage potential tensions or exceptions from certain principles. Such assessment should ensure a fair balance between all interests concerned, whether public or private, and the rights and freedoms at stake, given that certain fundamental rights and correlated principles (e.g. human dignity) are absolute and cannot be subject to a balancing exercise.

A simpler framing of the operational life cycle of AI systems, and broader data management activities, is defined in *Ethical Data and Information Management: Concepts, Tools, and Methods* [19]. This life cycle addresses three key stages: Acquisition (of data, training data, or algorithms), Analysis (the formulation of hypotheses in analytical processes, the development of machine learning models, and the delivery of an output), and Action (the decision making or process execution activity that arises from the output of analysis, the termination of processes or the deletion of data). Ethical issues can arise at each stage in this life cycle and the operation of the end-to-end system of data processing must be considered in the context of the impacts on individuals and society at each stage in this life cycle.

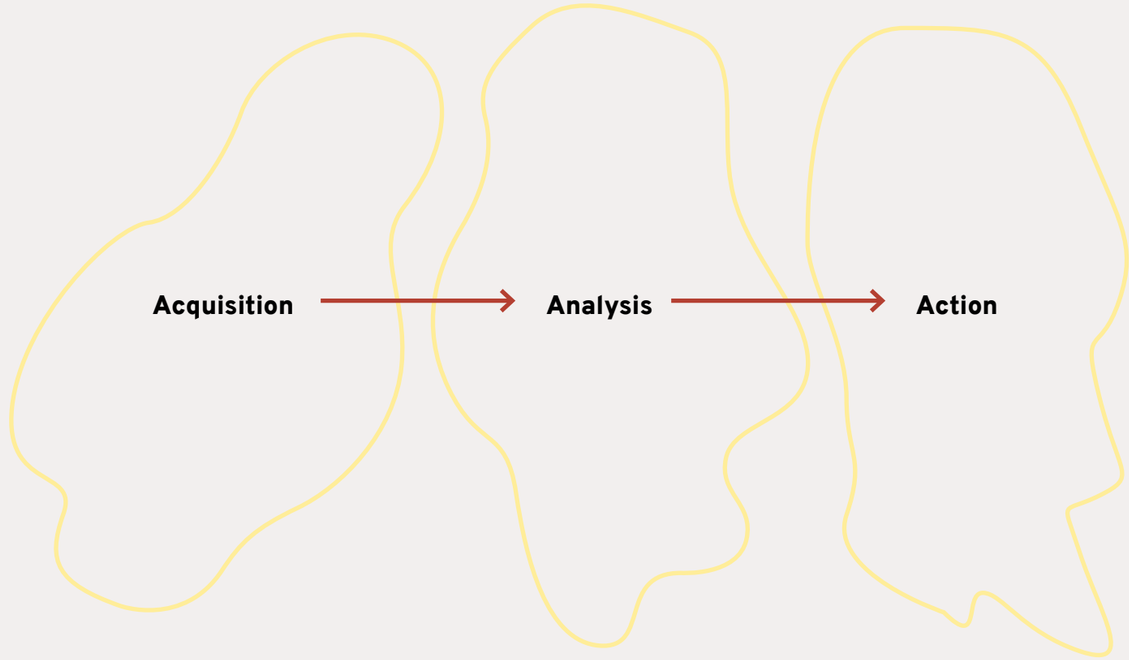


Figure 1:
The Simplified Analytics/AI Operational Life Cycle (c) Daragh O Brien 2012

PRINCIPLES AT A GLANCE

1. Human Centeredness

Human dignity constitutes the foundation for the universal, inalienable, interdependent, and interrelated system of human rights and fundamental freedoms. Therefore, AI systems throughout their life cycle should follow a human-centric and inclusive approach, ensure respect for human dignity, fundamental freedoms, autonomy and provide meaningful opportunities of full and effective self-determination.

2. Transparency and explainability

Transparency is crucial for building trust in AI systems. Therefore, AI systems throughout their life cycle should be accessible, and traceable. Humans should be informed when interacting with AI. The system's capabilities and impact on fundamental freedoms should be openly communicated, and the AI decision-making process and outcomes should be explainable to those directly and indirectly affected.

3. Safety, Privacy, and Security

No human being, group or society at large should be harmed by AI. AI systems should be developed with a preventative approach to risk management and be secure and safe throughout their entire life cycle. Further, AI actors should ensure that personal data protection and privacy, as fundamental human rights, are respected and guaranteed throughout the life cycle of AI systems.

4. Robustness and Quality

AI actors should ensure use of high-quality input data, truthful, proportionate in relation to the legitimate purposes pursued, and robust AI systems throughout their life cycle. Outcomes of AI systems should be regularly validated as part of the quality process. An explicit and well-formed development and evaluation process should ensure the accuracy, reliability and reproducibility of the AI systems.

5. Fairness and non-discrimination

AI actors must establish and maintain an inclusive approach to ensure that outcomes of AI systems are fair and non-discriminative, and include equal and just distribution of benefits. Such an approach should take into consideration the widest range of individuals and groups including children, gender, marginalized and vulnerable people, as well as cultural systems.

6. Responsibility and Accountability

AI actors should be responsible and liable for the proper functioning of AI systems and for the respect of the ethical principles and legal obligations based on their roles, the context, and consistent with the state of art and in accordance with applicable national and international law. Appropriate governance structures, risk management and monitoring mechanisms should be in place to ensure accountability for AI systems and their impact throughout their life cycle.

7. Adaptive Governance & Multi-stakeholder Collaboration

Multi-stakeholder participation in AI governance should be ensured, and take cognizance of applicable international law and other human rights norms and standards, and collaboration should be encouraged. Such collaboration may, for instance, take the form of including through the adoption of open standards and interoperability frameworks and sharing of best practices.

Further, measures should be developed to ensure agile policy and regulatory interventions to address shifts in technologies and their impact on fundamental human rights.

8. Awareness AND Literacy

Public awareness and understanding of AI systems and their impact on human rights and fundamental freedoms should be promoted by various stakeholders through open and accessible education, civic engagement, digital skills and AI ethics training, media literacy, considering the linguistic, social and cultural diversities, to ensure trust and effective public participation and informed decision-making about the use of AI systems.

9. Sustainability

AI systems should foster the development of a sustainable society and positively impact the economy and digital transformation, while enhancing individual and societal well-being and protecting the environment. To foster resilient and sustainable development in Uganda, the continuous assessment of AI systems' human, social, cultural, economic, and environmental impact should be carried out, and appropriate mitigation and/or prevention measures should be taken to address adverse impacts, including on future generations.

PRINCIPLES IN DETAIL

1. Human Centeredness

Human dignity constitutes the foundation for the universal, inalienable, interdependent, and interrelated system of human rights and fundamental freedoms. Therefore, AI systems throughout their life cycle should follow a human-centric and inclusive approach, ensure respect for human dignity, fundamental freedoms, autonomy and provide meaningful opportunities of full and effective self-determination.

Respect for Human Dignity

AI systems should be developed and used to respect human dignity, serve and protect humans' physical and mental integrity, personal and cultural sense of identity, and satisfy their essential needs. It is essential that AI systems treat human beings as moral subjects and not merely as objects to be sifted, sorted, scored, herded, conditioned, or manipulated.

Human Agency and Autonomy

AI actors must respect human beings' freedom and autonomy, enabling individuals to keep full and effective self-determination. AI systems should not subordinate, coerce, deceive, manipulate, condition or herd humans. AI systems throughout their life cycle should follow a human-centric approach supporting the user's agency and leaving meaningful opportunities for human choice.

Human Oversight

Human oversight refers not only to individual human oversight but to inclusive public oversight, as appropriate. Human oversight helps to ensure that an AI system does not undermine human autonomy or cause other adverse effects, in particular decisions or actions impacting life-or-death decisions or human rights and fundamental freedoms. It entails human oversight over AI systems, which can be achieved through human-in-the-loop (HITL), human-on-the-loop (HOTL), and human-in-command (HIC) approaches[20]. Regulators and enforcers should have the ability to exercise oversight in line with their mandate and powers.

2. Transparency and Explainability

Transparency is crucial for building trust in AI systems. Therefore, AI systems throughout their life cycle should be accessible, and traceable. Humans should be informed when interacting with AI. The system's capabilities and impact on fundamental freedoms should be openly communicated, and the AI decision-making process and outcomes should be explainable to those directly and indirectly affected.s.

Traceability

The data sets, processes and decisions made during the AI system life cycle as well as the algorithms used, should be documented to enable an analysis of the system's outcomes and identification of the reasons why an AI decision was erroneous, which, in turn, should help to prevent future errors.

Explainability

Explainability concerns the ability to explain the technical processes of an AI system and the related human decisions (e.g., application areas of a system). Whenever an AI system has a significant impact on people's lives, it should be possible to demand a suitable and timely explanation of the AI system's decision-making process.

Communication

Humans have the right to be informed that they are interacting with AI systems or when a decision is informed or made by AI. AI systems should not represent themselves as humans to users and must be identifiable as such. In addition, the option to decide against this interaction in favour of human interaction should be provided where needed to ensure compliance with fundamental rights. Beyond this, the AI system's capabilities and limitations should be communicated to AI practitioners or end-users in a manner appropriate to the use case at hand. In line with obligations under consumer protection laws, communications about AI technologies should be accurate and not misleading.

3. Safety, Privacy, and Security

No human being, group or society at large should be harmed by AI. AI systems should be developed with a preventative approach to risk management and be secure and safe throughout their entire life cycle. Further, AI actors should ensure that personal data protection and privacy, as fundamental human rights, are respected and guaranteed throughout the life cycle of AI systems.

Do not Harm

No human being, group or society at large should be harmed by AI, whether physically, mentally, economically, socially, politically or culturally. Effective AI governance and risk assessment should be in place to prevent the occurrence of such harm.

Resilience to Attack and Security

AI systems should be protected against vulnerabilities, and appropriate measures should be in place to ensure the system's integrity, resilience, and security against potential attacks.

General Safety

AI systems should be safe throughout their entire life cycle. Considering the magnitude of the risk posed by an AI system and the system's capabilities, systematic risk management and appropriate safety measures should be in place, including safeguards that enable a fallback plan in case of problems.

Data Protection and Privacy

Data protection and privacy rights of natural persons should be protected throughout the life cycle of AI systems. Data protection and privacy is one of the essential human rights that must be respected, protected and promoted by design and default. Proper data governance mechanisms should be implemented for all data collected, processed and generated throughout the life cycle of AI systems, in line with the principles and obligations related to the processing of personal data, and the rights of individuals under applicable data protection and privacy regulation[21]. Data Protection Impact assessments should be used to appropriately assess AI technologies' privacy implications and address societal and ethical considerations taking a privacy by design approach. Where applicable, anonymization and de-identification tools should be used to ensure data is not personally identifiable.

4. Robustness and Quality

AI actors should ensure use of high-quality input data, truthful, proportionate in relation to the legitimate purposes pursued, and robust AI systems throughout their life cycle. Outcomes of AI systems should be regularly validated as part of the quality process. An explicit and well-formed development and evaluation process should ensure the accuracy, reliability and reproducibility of the AI systems.

Data Quality and Integrity

The quality and integrity of the data are paramount to ensuring AI systems' ability to make correct predictions, recommendations and decisions. An explicit and well-formed development and evaluation process should be in place to ensure the quality and integrity of datasets.

Truthfulness

AI systems should be explicitly trained to be truthful via curated datasets and human interaction and safeguards should be foreseen to avoid negligent falsehoods. Additionally, AI actors should ensure they communicate clearly the capabilities and limitations of such systems and avoid deception as to the purpose of, the capability of, and risks associated with any AI system

Proportionality

AI systems throughout the entire lifecycle should be appropriate to the context, proportionate in relation to the legitimate purposes pursued, and should not lead to the violation or abuse of human rights and fundamental freedoms.

Accuracy

Accuracy pertains to an AI system's ability to make correct classifications, predictions, judgments, or decisions. A high level of accuracy is especially crucial in situations where the AI system directly affects human lives, rights and fundamental freedoms. An explicit and well-formed development and evaluation process should be in place to ensure the accuracy of algorithms and datasets throughout the AI system's life cycle and to mitigate risks from inaccurate predictions and decisions. Where inaccurate predictions cannot be avoided, the system should be able to indicate how likely these errors are.

Reliability and Reproducibility

AI systems should be reproducible and reliable to work properly with a range of inputs and in a range of situations and exhibit the same behaviour when repeated under the same conditions. AI system's capabilities should be subject to assurance within explicit and well-defined uses throughout the system's life cycle.

5. Fairness and non-discrimination

AI actors must establish and maintain an inclusive approach to ensure that outcomes of AI systems are fair and non-discriminative, and include equal and just distribution of benefits. Such an approach should take into consideration the broadest range of individuals and groups including children, gender, marginalized and vulnerable people, as well as cultural systems.

Universal Design

AI systems, particularly in business-to-consumer domains, should not have a one-size-fits-all approach and should be designed in a way to maximise equitable usability and flexible use by the broadest possible range of individuals, regardless of their age, gender, abilities or characteristics. AI developers and providers should consider Universal Design principles[22] and relevant accessibility standards.

Avoidance of Unfair Bias

To avoid prejudice and discrimination against certain groups or individuals, safeguards, including oversights and effective remedies, should be in place against the unfair, discriminatory and biased datasets and algorithmic determination.

Protection of Vulnerable People

Equal respect for all human beings' moral worth and dignity must be ensured throughout AI systems' life cycle. This also requires adequate respect for vulnerable people or people in vulnerable situations, including but not limited to children, the elderly, women, persons with disabilities, ethnic or religious minorities, gender minorities, or others at risk of exclusion.

Protection of Children

The child's best interests should be a primary consideration throughout AI systems' life cycle. Specific safeguards should be in place to ensure that human rights and fundamental freedoms, safety and integrity of children are protected, and they are meaningfully engaged in conversations, debates, and decision-making regarding the impact of AI systems on their lives and futures.

Gender Considerations

AI systems should contribute to achieving gender equality and ensure that the human rights and fundamental freedoms of girls and women, and their safety and integrity are not violated at any stage of the AI system life cycle. All potential gender stereotyping and discriminatory biases should be proactively identified and addressed.

Inclusion of Communities to be Affected

Respect, protection and promotion of diversity and inclusiveness should be ensured throughout the life cycle of AI systems. Communities directly or indirectly affected and vulnerable groups should receive greater attention and be included in the development, deployment and use of AI systems.

6. Responsibility and Accountability

AI actors should be responsible and liable for the proper functioning of AI systems and for the respect of the ethical principles and legal obligations based on their roles, the context, and consistent with the state of art and in accordance with applicable national and international law. Appropriate governance structures, risk management and monitoring mechanisms should be in place to ensure accountability for AI systems and their impact throughout their life cycle.

Auditability

Auditability[23] entails the assessment of algorithms, data and design processes. Evaluation by internal and external auditors, and the availability of such evaluation reports, will contribute to the trust, while AI systems significantly affecting fundamental rights should be independently audited.

Monitoring

To ensure robustness, integrity, and adherence to ethical principles over the AI system's entire life cycle and prevent adverse effects, proper monitoring mechanisms should be in place and carried out continuously in a systematic way proportionate to the relevant risks.

Risk Management

AI systems throughout their life cycle require a systematic and continuous risk management approach and risk management policies, procedures, and practices to identify, analyse, evaluate, address, monitor, and review all potential risks, including but not limited to privacy, security, safety, and bias.

Adjudication of Liability and Remedy

The ethical responsibility and liability for the decisions and actions by the AI systems should always ultimately be attributable to AI actors corresponding to their role in the life cycle of the AI system. Effective appeal mechanisms that allow individuals to seek redress and have an effective remedy[24] against the AI actors responsible for violating their rights and freedoms should be in place. The availability of such mechanisms should be clearly communicated to individuals, with particular attention to those who are vulnerable or in vulnerable situations.

7. Adaptive Governance and Multi-stakeholder Collaboration

Multi-stakeholder participation in AI governance should be ensured, and take cognizance of applicable international law and other human rights norms and standards, and collaboration should be encouraged. Such collaboration may, for instance, take the form of including through the adoption of open standards and interoperability frameworks and sharing of best practices Further, measures should be developed to ensure agile policy and regulatory interventions to address shifts in technologies and their impact on fundamental human rights.

Multi-stakeholder Participation

Participation of different stakeholders[25] who may directly or indirectly be affected throughout the AI system life cycle is necessary for inclusive approaches to AI governance, enabling the benefits to be shared by all and contributing to sustainable development.

Collaboration and Interoperability

The adoption of open standards and interoperability to facilitate collaboration should be put in place. This will support data sharing initiatives and promote fair competition, innovation and re-use of system functionality. Promotion of reuse, co-operation and sharing of best practices for design and implementation of AI systems should be encouraged to spur innovation and remove barriers for entry for innovators.

Agility in policy and law

Measures should be adopted to take into account shifts in technologies and the emergence of new groups of stakeholders. Agile frameworks should allow for such developments to be incorporated into the governance of AI systems. Such measures may include the adoption ethics boards and regulatory sandbox.

8. Awareness & Literacy

Public awareness and understanding of AI systems and their impact on human rights and fundamental freedoms should be promoted by various stakeholders through open and accessible education, civic engagement, digital skills and AI ethics training, media literacy, considering the linguistic, social and cultural diversities, to ensure trust and effective public participation and informed decision-making about the use of AI systems.

Public awareness and literacy

An effective approach must be designed and implemented to educate and sensitize the public on the benefits and value of AI systems and their impact on human rights and fundamental freedoms, through education, civic engagement, digital skills and AI ethics training, and media literacy. This requires a collaborative effort of the private sector, academia, civil society, media and Government.

Trust

Trust is essential for AI to achieve its world-changing potential. To build the public confidence and acceptance of AI systems, AI actors should ensure public engagement, openness and contestability that such an approach requires and proactively demonstrate measures taken to maximise AI benefits for individuals and society while at the same time preventing and mitigating risks.

Impact on work and skills

AI actors should empower people with the necessary skills to effectively use and interact with AI systems and ensure that the benefits are broadly and fairly shared, while AI systems should enhance the safety of workers, the quality of jobs and productivity.

9. Sustainability

AI systems should foster the development of a sustainable society and positively impact the economy and digital transformation, while enhancing individual and societal well-being and protecting the environment. Therefore, to promote resilient and sustainable development, Uganda should continuously assess AI systems' human, social, cultural, economic, and environmental impact and take appropriate mitigation and prevention measures to address the adverse effects, including those on future generations.

Economic and societal well being

AI systems should have a transformational impact on the economy, where AI can be used effectively and safely to increase human flourishing, enhancing individual and societal well-being and the common good by bringing progress and innovation.

Environmental well being

Measures securing the environmental responsiveness of AI systems should be in place, including a critical examination of the resource usage and energy consumption throughout the AI system's entire lifecycle, opting for less harmful choices

Preservation of culture

AI systems should respect, preserve and promote cultural diversity and heritage, including endangered and indigenous languages, by considering the cultural impact of AI systems and addressing the negative implications such as the reduction of use, which could lead to the disappearance of endangered languages, local dialects and cultural variations.

4

DEVELOPING THE IMPLEMENTATION FRAMEWORK

An overall good governance framework for AI requires a pluralistic, multi-disciplinary, multicultural, and multi-stakeholder approach. This must be grounded on a fundamental principle that AI must be implemented and managed to serve humankind and must be informed by and support a strategic vision for how AI will be used to support individuals and society.

It is also important to recognize that the introduction of any new technology capability represents both a technological challenge and opportunity and a social challenge and opportunity. An overall governance framework for ethics in AI must therefore address not just the governance of technology but the wider societal context within which ethical decisions in respect of AI and its use will be made and the impacts on individuals or groups within society. As Birhane (2021)[26] describes it:

> ***"Thinking in relational terms about ethics begins with reconceptualizing data science and machine learning as practices that create, sustain, and alter the social world.***

In this context, the creation of an ethics framework for AI, or indeed the wider sphere of data management and governance, must be grounded on communicable and relatable foundation principles that must be informed by the social world and the ethical norms of society, while allowing those norms to evolve as technology and its implementation creates new social worlds and gives rise to novel challenges in setting an appropriate balance between technical capability and social responsibility. Foundational principles must serve as a moral compass to guide decisions and influence choices so that data and technology can be used to support humankind and social development.

Furthermore, the framework for implementation must be capable of supporting and enabling ethical innovation in the application of technology, pragmatic evolution of regulatory measures in response to evolving social and technological needs, and effective interoperability and cooperation on the oversight and enforcement of ethical norms for AI across different jurisdictions. This must be achieved in a manner which preserves and gives meaningful voice to the Ugandan context and the social and ethical norms of Uganda.

The approach that is taken in this report is to set out core concepts to underpin the implementation framework choices that need to be considered. From this conceptual basis, three candidate pathways for an implementation framework have been identified. For each candidate pathway, a set of requirements and recommendations for the Regulatory environment and Implementation Framework in each Pathway is set out, along with a high-level assessment of the benefits, issues, and risks associated with each Pathway. This approach allows for the adoption of hybrid options by Uganda, allowing for the maximum expression of Ugandan identity, culture, and priorities in the development of an appropriate framework for the Ugandan context.

CORE FRAMEWORK CONCEPTS

The development of an ethical culture depends on the alignment of multiple formal and informal systems in an organization that, taken together, send messages to actors in the organization about expected behaviour. In the context of AI, the "organization" is the business, government agency, or any entity, which is implementing AI. However, wider society is also part of the "organization" in this context[27]. The actors to whom messages are to be sent about expected behaviours are the sponsors or initiators of projects or initiatives involving the implementation of AI technologies, the developers and implementers of such technologies, the knowledge workers interacting with the output of these technologies, and the individuals who are affected by the outcomes delivered by these projects, processes, or initiatives.

The implementation framework has been developed based on this recognised need to ensure alignment of formal and informal systems to deliver a sustainable approach to the regulation and governance of AI ethics in Uganda.

This alignment must consider three perspectives[28]:

The Ethic of Society

The shared expectations of society of the outcomes, benefits, and mitigation of harms in the context of any action or activity.

This is usually expressed through the codification of laws or the adoption of administrative policy by governments that, in turn, influence the conduct of organisations or individuals through sanctions and enforcement. It can also be influenced through education and other interventions that can change the social framing of behaviours, actions, and outcomes.

The Ethic of the Organisation

The shared cultural norms of what 'good' behaviour and conduct looks like in any organisation or societal group.

These are expressed and influenced through internal organization governance frameworks and organisation culture, incentives and reward structures, and role model behaviours of organisation leadership.

It can influence the Ethic of Society through the lobbying activity of organisations or representative bodies and through the development of industry or sectoral codes of conduct for ethical behavior or decision making. It can be influenced by enforcement action of Regulators, litigation, or social pressure (e.g., customer boycotts).

The Ethic of the Individual

The personal level of moral and ethical awareness of an individual in the context of the activities being undertaken.

This is expressed through the actions and choices of the individual when faced with an ethical choice. It is influenced by the individual's personal moral development, the level of peer support they have in their organisation or community, their level of understanding of the context of the ethical issues (e.g., their understanding of AI capabilities and processes), and their perceived ability to influence outcomes. It influences both the Ethic of the Organisation and the Ethic of Society through individual actions such as whistleblowing[29] or protest.

Within each of these perspectives, policy interventions across several dimensions will be required to ensure that the regulation of AI is addressed as a social and societal initiative rather than simply a legislative measure addressing a technology. We have identified the following dimensions for consideration in the design of the Implementation Framework and the specification of policy or legislative interventions to support the ethical application of AI and associated technologies.

Data Literacy and Digital Competence

Uganda, in common with many other countries, has a low level of awareness and education around AI technology and its benefits and risks. This, in turn, leads to a recognised skills gap in relation to AI development and implementation. This is consistent with trends in other jurisdictions that have identified the development of domestic talent for AI, but it is also consistent with the growing awareness of the need for data literacy within organisations[30]. This need for awareness and literacy is also explicitly recognised by UNESCO's *Recommendation on the Ethics of Artificial Intelligence*[31].

However, Artificial Intelligence does not exist in a vacuum. AI competencies are built on the foundations of wider data literacy and digital competence. As such, to address the skills gap that has been recognised, it is necessary to adopt a broad approach to data literacy and digital competence in Uganda to support the wider social understanding of the role of data in daily life and the reality of AI and its capabilities.

Data Literacy in this context can be defined as "the ability to read, write and communicate data in context, including an understanding of data sources and constructs, analytical methods and techniques applied, and the ability to describe the use case, application and resulting value"[32]. It focuses on the competencies involved in working with data and spans fundamental skills such as data quality management to more advanced skills in development and implementation of AI models.

From an academic perspective, there is a growing recognition internationally that the application of ethics to data management and emergent technologies such as Artificial Intelligence requires a multi-disciplinary approach to develop appropriate skills and competencies in AI developers, researchers, and implementers. Similar trends are emerging globally in professional certifications and industry frameworks, and there is also a growing recognition in industry that data literacy and the understanding and application of data management fundamentals in support of the implementation of AI is key to successful implementation[33].

However, as the introduction and implementation of AI and associated technologies is a social and societal change, this development of data literacy and digital awareness should not be focused solely on developing technical skills in data management and Artificial Intelligence.

To support the development of trust in AI and associated technologies, and to help develop awareness of how data can and will be used to support the societal and economic goals of Uganda, it will be necessary to develop digital competence and provide citizen stakeholders with the ability to understand, interact with, and benefit from data and AI technologies while have an informed understanding of the potential issues and risks associated with such tools[34].

In this context, digital competence can be defined as "the skills and literacies that an average citizen needs to learn in the digitized information society"[35].

In addressing data literacy and digital competency development, consideration must be given to the modes of delivery of education and awareness building to take account of 'traditional' literacy issues. The use of storytelling and narrative in an oral tradition should be considered an important component of a multi-layered approach to raising digital awareness and competence and promoting data literacy.

It is also essential that initiatives to address data literacy and digital competence encompass the interdisciplinary nature of the digital revolution, and AI in particular. There is wisdom in the saying:

> ***"When you are sitting in your own house you don't learn anything. You must get out of your house to learn.***

Sectoral Self-Regulation

Sectoral or industry self-regulation through sectoral codes of conduct, or industry standard practices can provide a mechanism to support the alignment of the Ethic of Society with the Ethic of the Organisation. They can also provide a form of regulatory mechanism which can be more responsive to societal or technological changes than either a formalised standard or statutory regulation, both of which can take time to develop and may entail significant procedural hurdles[36].

Industry Codes of Conduct can also facilitate cross-border alignment in practice, pending the establishment of more formal transnational or international instruments. In addition, the role of professional bodies in developing awareness of data ethics in the context of their codes of conduct or codes of ethics supports the development of individual ethical awareness.

Examples of effective models of industry-based self-governance identified in the literature are limited. Among the examples cited by researchers are the US Defence Industry Initiative on Business Conduct and the UK's Banking Standards Board[37].

Increasingly, the academic study of ethics applied to data and AI is recognising the challenges of taking 'macro-ethics' in the form of high-level ethical principles and translating them into practice[38]. Self-Regulatory codes of conduct or standard practices provide a mechanism for industry to translate the foundational ethical principles into actionable ethical practices in the context of specific AI processes or applications of AI and associated technologies.

Standards and Certification Schemes

Standards and Certification Schemes serve a similar purpose to codes of conduct or other self-regulatory mechanisms. While industry stakeholders participate in the development of standards and certification schemes, compliance to a standard is usually subject to self-certification or independent audit and verification by an independent body. In Uganda, the relevant body is the Uganda National Bureau of Standards.

Audited compliance to defined standards and certification schemes provides a robust trust signal to stakeholders that the implementers of AI solutions are acting with appropriate consideration to the ethical issues and potential impacts of technologies on individuals and society. In other circumstances, compliance can be demonstrated through self-certification. In addition, non-certifiable standards such as ISO 26000 (the ISO standard for Corporate Social Responsibility) demonstrate a consideration by an organisation of the goals of that standard.

One approach which could be taken is to develop a standardised taxonomy of AI use cases with a defined baseline set of ethical issues to be considered and mitigated in the design and implementation of solutions to serve those use cases. This approach has been adopted by Smart Dublin in Ireland as part of their development of Data Protection and Privacy controls for the operation of drone mounted sensors. However, such a standardisation of approaches would carry greater weight if supported by a national standards body[39].

The development of standards and certification schemes at a national level, and the alignment of such schemes with regional or international standards will require knowledge and competencies that may not traditionally be in the scope of standards bodies. Therefore, mechanisms will be required to support UNBS in developing, adopting, and promoting the application of standards for AI Ethics.

Finally, providing guidance on the adaptation of existing standards and their relevance in the context of AI Ethics is also a potential function of a Standards Authority. For example, ISO9001:2015 has been applied in the context of clinical ethics consultation processes[40].

Statutory Regulation and Enforcement

Statutory regulation and legislative instruments represent the codification of the Ethic of Society. In our interviews and in the survey responses, it was clear that stakeholders recognised the important role of statutory regulation in supporting an ethical AI framework. Furthermore, in review of literature, it is clear that there may be a requirement for sectoral-specific regulation, particularly in high-risk processing contexts.

However, the development of legislative instruments and the appropriate resourcing of effective enforcement were identified as key issues to be considered, along with the risk of legislative approaches stifling innovation in the development of AI in Uganda. A recognised challenge in the development of statutory instruments in this area is the risk of technology outpacing the legislative process resulting in laws that are obsolete or of limited relevance before they come into force. This was explicitly referenced in the workshops and interviews undertaken as part of this project.

It is also important to consider in this context that AI processes and technologies do not simply process personal data within the context of the Data Protection and Privacy Act. Rather, they process data that may affect people at different points in the life cycle of the processing. For example, AI processes that interpret sensor data from drones flying over farmland to provide insights on improving crop yields[41] do not necessarily process personal data. But the processing of sensor data does potentially impinge on privacy and the actions taken on foot of analysis will have an impact, positive or negative, on the farmers and communities involved.

The range of options available within an implementation framework include:

a) interpreting existing legislation and relevant regulatory bodies issuing authoritative guidance within the scope of their mandate,

b) develop regulation under applicable existing legislation to reflect the issues raised by AI and associated technologies,

c) amend existing legislation to reflect the issues raised by AI and associated technologies,
or
d) developing a stand-alone legislative model for AI, which may still be linked to other legislative and regulatory regimes such as the Data Protection and Privacy Act.

What is necessary, however, in any mode of statutory regulation, is that any legislative measures that may be adopted address accountability for ethics in the application and development of AI across the lifecycle of AI-related processing, from the acquisition of data (including training data), to the analysis of data (including the building of AI models), and the actions taken on foot of the outputs of such analysis.

An essential consideration in the design of any legislative regime will need to be the enforceability of the regime, both in terms of the resources and capabilities of the regulators but also the establishment of clear behavioural norms from actors, defined thresholds for standards of care, and the creation of concrete and evidencable outcomes or artefacts of controls or governance for AI Ethics which regulatory bodies can use to ground meaningful enforcement actions. Within the context of a risk-based approach to regulation which would seek to support appropriate innovation and not stifle it, this requires careful consideration of how best to balance innovation and risk.

It is also necessary that any statutory regulation of AI be interoperable with equivalent regulatory regimes in other regional countries and any emergent international instruments regulating the adoption and use of AI and associated technologies.

Ethics Council and Regulatory Sandbox

The engagement with stakeholders and experts in the development of this Framework identified the potential role of an Ethics Council in supporting the balance between the application and regulation of ethics in AI and innovation in the application of AI. This would take on a Regulatory Sandbox model similar to that which has been adopted in Uganda in relation to Payment Systems[42] or other jurisdictions and industry sectors.

This echoes the finding of Trevino et al[43] that regulatory frameworks should create incentives for industry to create an "independent, neutral research entity that conducts assessments of ethical culture, communicating between the industry and regulators".

In the context of AI development and innovation, such a research entity supports regulators, standards bodies, and legislators through the provision of expertise and insight into technology trends and ethical issues arising from technologies. Furthermore, they could engage with industry sectoral bodies and representative bodies to support the development of codes of conduct and sector-specific Ethics Risk Assessment methodologies.

A regulatory sandbox is a framework set up by a regulator or as part of a regulatory framework that allows start-ups and other innovators to conduct live experiments in a controlled environment under a regulator's supervision. Research conducted on behalf of the World Bank Group[44] in the context of FinTech has identified that these are useful mechanisms for balancing innovation against social and regulatory risks of new and emerging technology. An emerging trend in the context of regulatory sandboxes is the development of "thematic sandboxes" which are designed to advance more focussed policy objectives[45]. These may serve as a mechanism to prioritise effort and focus on key strategic initiatives within the AI Strategy.

According to the Stanford PACS Centre on Philanthropy and Civil Society:

> ***"Real innovation-minded regulatory agencies see sandboxes as means, not ends. Real innovation-minded regulatory agencies shun the glitz of sandboxes; rather they take the insights gained from sandboxes to improve rulemaking, supervision, and enforcement policies so that the entire market can benefit[46].***

As the application of ethics to Artificial Intelligence is an emerging area with potential for significant innovation in the underlying technologies and use cases, the social acceptance and understanding of the technologies and their benefits, and the potential known and unknown ethical implications of technologies, a Regulatory Sandbox approach would seem to be a relevant and sensible component of an AI Ethics Regulatory framework.

A secondary benefit of such an approach would be that it presents an opportunity for engagement with Ugandan universities and associations to potentially provide students, start-ups and researchers with a 'living laboratory' model where they can gain practical experience in the development of AI processes with a conscious focus on implementing ethical principles by design. This would support the development of Ugandan technical and related skills and competencies as part of the Data Literacy and Digital Competence dimension. It would also serve to encourage industry and academic collaborations on research and development.

Adopting a 'living laboratory' construct for a Regulatory Sandbox model might also allow for the processing of personal data in this context under Section 17 of the Data Protection and Privacy Act 2019 if the Sandbox was to be considered a "research purpose", with a required output of the research being the identification of any regulatory gaps or required safeguards that would need to be implemented to ensure adequate safeguards were in place to protect individuals and communities from unethical, unlawful, or otherwise undesirable outcomes.

We would suggest that the operation of the Regulatory Sandbox would be coordinated by the Data and AI Ethics Council, with monitoring by the relevant Regulatory Authority or Authorities. The establishment of the Council is similar to the BPO and Innovation Council that was put in place by the Ministry of ICT and National Guidance to formulate strategies for creating jobs for the youth through ICT outsourcing and Innovation, prescribe regulatory frameworks/reforms and projects relevant to the growth of the Business Process Outsourcing and Innovation industry[47].

Research on behalf of WBG has found "... a significant variance among the regulators in terms of human resources committed, ranging from 1 to 25 full-time employees. Three quarters of the respondents tapped internal resources (73 percent) rather than new hires. There was a wide range in the financial resources dedicated as well, with figures from $25,000 to over $1 million. This discrepancy could be due to the fact that some but not all jurisdictions included the salaries of staff dedicated to the sandbox. Nearly all respondents used funds from their core budgets, and only one jurisdiction indicated that it charged application fees for entry into the sandbox.[48]"

It would be necessary to explore appropriate funding models for a Regulatory Sandbox.

5

DEVELOPING PATHWAYS FOR AN AI ETHICS FRAMEWORK

It should be borne in mind that while there is extensive global engagement in the development of frameworks to regulate the ethical use of Artificial Intelligence, there is, at the time of preparation of this report, no established consensus on the optimal model for sustainable regulation of ethics in Artificial Intelligence. In this context, a Ugandan proverb gives pause for consideration:

> ***"Do not follow the path. Go where there is no path and begin a trail.***

Below we outline three potential pathways for an AI Ethics Framework which may be considered by Uganda. These pathways are descriptive, not prescriptive, and it is expected that the implemented framework will likely adopt elements from one or more of these pathways in a way that reflects Ugandan culture, values, and society while supporting responsible and ethical innovation in the use of AI and enabling interoperability and alignment with regional and international frameworks.

It is important to note that each of these pathways assumes the definition of a clear strategy by Uganda for how AI can be used to deliver social and societal value which the AI Ethics Framework will support and enable.

PATHWAY 1: CENTRALISED-STATUTORY

In this potential Pathway to AI Ethics Regulation, the emphasis is placed on a single central regulatory function underpinned by a robust statute-based regulatory framework with a centralised AI regulatory instrument establishing the regulator and codifying the ethical principles in a statutory framework.

Regulatory Framework Requirements

The regulatory framework in this Pathway is centralised on a single lead Regulator and is underpinned by a legislative instrument. Key actions or requirements from a regulatory perspective in this in this Pathway would include:

- **Introduction of a general AI Regulatory legislative instrument** that codifies princi ples and establishes minimum standard requirements for organisational and technical controls, governance, transparency, and data quality. This instrument should also address accountability for harms caused by AI or for failure on the part of organisations to imple ment appropriate organisational and technical controls to give effect to ethical principles. Legislation also allows Regulators to approve Codes of Conduct.
- **Establishment of a single lead regulatory function**, which could be an extension of the functional scope of the existing Personal Data Protection Office or a separate stand-alone AI Regulator.
- **Development of contextual or sectoral guidance from the Regulator** on a proactive basis or in response to incidents, industry consultations, or regional or international precedents or reference models.

Implementation Framework Requirements

DIMENSION	SUGGESTED ACTIONS
Data Literacy & Digital Competence	• Implement a multidisciplinary/cross-disciplinary approach to education and research in third and fourth level for Artificial Intelligence. Must include education on the legal framework for AI in Uganda. • Develop a Digital/Data Competencies Framework for academic, industry, and community/societal skills in data and understanding of AI. • Develop academic programmes for technical and non-technical disciplines of data management (Data Quality, Data Governance, Data Ethics etc.) to develop required skills. • Develop messaging and community education in an accessible and communicable form to drive awareness of how data supports Ugandan social and economic objectives and to promote relevant understanding of AI and associated technologies. • Engage with relevant professional bodies /7 NGOs / academia to promote digital competencies framework with relevant certifications. • Develop competencies and skills within the Regulatory body to support expanded role or to enable the effectiveness of a new agency.
Sectoral Self-Regulation	• Develop appropriate industry or sectoral codes or "best practice" methods and practices to address the minimum requirements of legislation and to conduct self-assessment/self-certification of practices. • Develop sector specific examples of the 'macro ethics' in practice to develop awareness of required standard of care/standard of conduct. • Collaborate with academia and/or Data & AI Ethics Board on best practice research and on the development of relevant training and skills accreditation outside of a traditional academic context (e.g., professional continuous professional development). • Engage in Sandbox approaches to developing AI systems.

DIMENSION	SUGGESTED ACTIONS
Standards and Certification	• In collaboration with Regulatory Authority, develop standard templates/ methodologies for Ethical Impact Assessments and self-assessments. • Identify existing relevant standards which are supportive of AI quality and AI Ethics principles such as data quality/accuracy and, where possible, provide certification to these standards or guidance on how certification can be achieved. • Support the development and accreditation of relevant and appropriate training to support the upskilling of regulatory bodies, policy makers, technology implementers, and wider society.
Data & AI Ethics Board & Sandbox	• Establish Data and AI Ethics Board as a multidisciplinary expert panel from industry and academia (domestic and international experts), with a supporting secretariat (This should be separate from the Regulator). • Establish processes for Data and AI Ethics Board to advise Regulator and Standards Authority, liaise with academia and industry, and conduct own research into best practices and emerging ethical issues and technology trends. • Support the Regulatory Sandbox under the auspices of the Regulatory Authority. This may be a thematic sandbox or a more general approach. • Implement a legislative response plan for issues raised by/encountered in Regulatory Sandbox projects • Implement procedures to follow up on implementation of projects after Sandbox to ensure ethical principles and legal requirements are complied with.

Benefits, Issues, Risks, and Investment

BENEFITS

- Simple single point of contact model for regulation.
- Establishes a clear legislative framework.
- Creates a 'single voice' for communicating and driving awareness of AI Ethics and its regulation in Uganda.

ISSUES

- Statutory drafting will take time, particularly assessing impact on other legislation.
- Aligning AI Ethics with Data Protection Commission may obscure non-personal data aspects of AI Ethics.
- Developing multidisciplinary education and research interventions will take time and requires effective collaboration between disciplines.
- Monitoring of Regulatory Sandbox will be resource intensive. This may be mitigated through the adoption of a thematic approach to sandbox implementation.

RISKS

- May be restrictive of innovation.
- Legislation may become obsolete in the face of evolving technical capabilities or social norms.
- May lead to regulatory gaps where Regulatory Authority lacks powers to address emerging risks or threats.
- May give rise to a bottleneck in enforcement for unethical conduct.
- Lobbying by stakeholders on the drafting of legislation may result in a legislative framework that does not adequately balance innovation with protections and safeguards for individuals, communities, or social values.
- Focus of sectoral self-regulation will be on the minimum necessary to achieve compliance with codified law. Limited incentive to innovate for the support and development of ethics.

INVESTIMENT

- Requires investment in resourcing and upskilling of Regulatory Authority.
- Requires investment in resourcing and upskilling the Standards Authority.
- Requires funding for the implementation of the Data and AI Ethics Board and the recruitment and training of members and secretariat.
- Regulatory Sandbox will require funding to operate effectively.
- Development of interdisciplinary research groups and syllabuses in university sector will require investment and funding (but is a key enabler and a necessary action to address skills gaps).
- Development of a Data Literacy/Digital Competence Framework will require contributions from different stakeholders.

PATHWAY 2: DECENTRALISED-STATUTORY

In this potential Pathway to AI Ethics Regulation, the operating model would be one of decentralised regulatory oversight based on a sectoral model underpinned by a statute-based regulatory framework that addresses, on a sector-by-sector basis, the ethical issues in AI.

The prioritisation of sectoral interventions in this Pathway will need to be carried out in line with and in support of the prioritised outcomes of a defined AI Strategy.

Regulatory Framework Requirements

The regulatory framework in this Pathway is decentralised, with statutory regulation being implemented through the amendment of existing sectoral legislation (e.g., Financial Services legislation) with enforcement being undertaken by relevant sectoral regulators. Suggested actions within the Regulatory Framework for this Pathway include:

- **Identify relevant sectoral legislation** based on the AI Strategy priorities and review legislation to determine necessary amendments or clarifications on interpretation that will be required.
- **Draft and implement the required legislative reform package.** Legislative changes must ensure that accountability for harms caused by AI or for failure on the part of organisations to implement appropriate organisational and technical controls to give effect to ethical principles is clearly established in law.
- Legislative changes should also allow for the **development of approved codes of conduct** for AI Ethics at sectoral level.
- **Amend Data Protection and Privacy Act** to add to the functions of the Personal Data Protection Office (PDPO) as 'regulator of last resort' in the event that data processing activities fall outside the scope of other regulatory regimes. This will entail an expansion of the scope of operations of the PDPO to potentially encompass processing of data that does not relate to personal data.
- **Develop procedural frameworks for cooperation and consistency mechanisms** between regulatory bodies that pertain to AI Ethics and the application of Ethical Principles to AI and associated technologies.
- Establish a **"College of Regulators"** to enable collaborative development of guidance, standards, and to support consistency in decision making on the application of ethical principles.
- **Development of contextual or sectoral guidance from Regulators** on a proactive basis or in response to incidents, industry consultations, or regional or international precedents or reference models

Implementation Framework Requirements

DIMENSION	SUGGESTED ACTIONS
Data Literacy & Digital Competence	• Implement a multidisciplinary/cross-disciplinary approach to education and research in third and fourth level for Artificial Intelligence. Must include education on the legal framework for AI in Uganda. • Develop a Digital/Data Competencies Framework for academic, industry, and community/societal skills in data and understanding of AI. • Develop academic programmes for technical and non-technical disciplines of data management (Data Quality, Data Governance, Data Ethics etc.) to develop required skills. • Develop messaging and community education in an accessible and communicable form to drive awareness of how data supports Ugandan social and economic objectives and to promote relevant understanding of AI and associated technologies. • Engage with relevant professional bodies / NGOs / academia to promote digital competencies framework with relevant certifications. • Develop competencies and skills within Regulatory bodies to support expanded role.
Sectoral Self-Regulation	• Develop appropriate industry or sectoral codes or "best practice" methods and practices to address the minimum requirements of legislation and to conduct self-assessment/self-certification of practices. • Develop sector specific examples of the 'macro ethics' in practice to develop awareness of required standard of care/standard of conduct. • Collaborate with academia and/or Data & AI Ethics Board on best practice research and on development of relevant training and skills accreditation outside of a traditional academic context (e.g., professional continuous professional development). • Engage in Sandbox approaches to developing AI systems. • Liaise with sectoral regulators in relation to Regulatory guidance or legislative change.
Standards and Certification	• In collaboration with sectoral regulators or the "College of Regulators", develop standard templates / methodologies for Ethical Impact Assessments and self-assessments. • Identify existing relevant standards which are supportive of AI quality and AI Ethics principles such as data quality/accuracy and, where possible, provide certification to these standards or guidance on how certification can be achieved. • Support the development and accreditation of relevant and appropriate training to support the upskilling of regulatory bodies, policy makers, technology implementers, and wider society.
Data & AI Ethics Board & Sandbox	• Establish Data and AI Ethics Board as a multidisciplinary expert panel from industry and academia (domestic and international experts), with a supporting secretariat (This should be separate from the Regulatory functions). • Establish processes for Data and AI Ethics Board to advise Regulators and Standards Authority, liaise with academia and industry, and conduct own research into best practices and emerging ethical issues and technology trends. • Where appropriate, establish Regulatory Sandboxes under the auspices of the Regulatory Authorities. This may be a thematic sandbox or a more general approach. • Implement a legislative response plan for issues raised by/encountered in Regulatory Sandbox projects. • Implement procedures to follow up on implementation of projects after Sandbox to ensure ethical principles and legal requirements are complied with.

Benefits, Issues, Risks, and Investment

BENEFITS

- Allows for a sectoral approach to AI regulation in Uganda.
- May enable more responsive regulatory responses to sectoral issues.
- Sectoral regulators are likely to have deeper understanding and insights into regulatory and ethical issues arising for regulated entities in the use of AI.

ISSUES

- Will require the identification of a lead 'coor dinating' regulator.
- Procedures for cooperation and consistency of regulatory approaches will be required.
- Maybe difficult for stakeholders to identify the correct regulatory regime for their AI product or service.
- Not all domains where AI systems and processes that will be implemented will necessarily have a regulatory body, meaning a default regulator will need to be defined in legislation.
- The establishment of multiple Regulatory Sandboxes for each regulated sector will represent a potential duplication of effort and investment.

RISKS

- May not adapt to the reuse of AI models or processes across different sectors / industry domains.
- Introduces risk of sectoral 'silos' developing in context of technologies that have general application.
- May still require the implementation of a general AI Regulatory legislative instrument to support coordination of regulatory activity and provide procedural clarity on enforcement and to establish a 'regulator of last resort'.

INVESTIMENT

- Requires investment in resourcing and upskill ing of multiple regulatory authorities.
- Requires investment in resourcing and upskill ing the Standards Authority.
- Requires funding for the implementation of the Data and AI Ethics Board and the recruitment and training of members and secretariat.
- Regulatory Sandboxes will require funding to operate effectively.
- Development of interdisciplinary research groups and syllabuses in university sector will require investment and funding (but is a key enabler and a necessary action to address skills gaps).
- Development of a Data Literacy/Digital Competence Framework will require contribu tions from different stakeholders.

PATHWAY 3: FEDERATED - EVOLUTIONARY

In this potential Pathway to AI Ethics Regulation, the emphasis is placed on a federated co-regulatory model that is supported by the development of codes of conduct and sectoral standards which serve to establish a standard of care for the design and implementation of AI systems.

The emphasis in this Pathway is initially less on the implementation of statutory measures but emphasizes the development of co-regulatory model emphasising codes of conduct, regulatory guidance, and the development of standards, grounded on the core AI Ethics principles, with statutory regulation developing in tandem to address issues and areas where there is common agreement that statutory codification of norms is required or, alternatively, where there is a requirement for sectoral regulation in particular contexts.

The use of Regulatory Sandboxes to evaluate proposed use cases or applications of AI, and to identify the required safeguards in terms of guidance, codes of conduct, or legislative change will be a key component of this Federated Evolutionary pathway. Sandboxes should be implemented based on key themes from the AI Strategy for Uganda.

Regulatory Framework Requirements

The regulatory framework in this Pathway is federated between different regulatory stakeholders in a co-regulatory model:

- **Identify relevant sectoral legislation** based on the AI Strategy priorities and review legislation to determine necessary guidance on interpretation and application of current laws in novel circumstances that will be required.
- **Ensure access to judicial redress is available** for individuals or social groups who may be affected by unethical outcomes of AI processes or failure on the part of implementers to meet an identified standard of care.
- **Legislative changes** should also allow for the development of approved codes of conduct for AI Ethics at sectoral level.
- **Develop procedural frameworks** for cooperation and consistency mechanisms between regulatory bodies that pertain to AI Ethics and the application of Ethical Principles to AI and associated technologies.
- **Establish a "College of Regulators"** to enable collaborative development of guidance, standards, and to support consistency in decision making on the application of ethical principles.
- **Development of contextual or sectoral guidance** from Regulators on a proactive basis or in response to incidents, industry consultations, or regional or international precedents or reference models.

Implementation Framework Requirements

DIMENSION	SUGGESTED ACTIONS
Data Literacy & Digital Competence	• Implement a multidisciplinary/cross-disciplinary approach to education and research in third and fourth level for Artificial Intelligence. Must include education on the legal framework for AI in Uganda. • Develop a Digital/Data Competencies Framework for academic, industry, and community/societal skills in data and understanding of AI. • Develop academic programmes for technical and non-technical disciplines of data management (Data Quality, Data Governance, Data Ethics etc.) to develop required skills. • Develop messaging and community education in an accessible and communicable form to drive awareness of how data supports Ugandan social and economic objectives and to promote relevant understanding of AI and associated technologies. • Engage with relevant professional bodies / NGOs / academia to promote digital competencies framework with relevant certifications. • Develop competencies and skills within Regulatory bodies to support expanded role.
Sectoral Self-Regulation	• Develop appropriate industry or sectoral codes or "best practice" methods and practices to address the minimum requirements of legislation and to conduct self-assessment / self-certification of practices. • Develop sector specific examples of the 'macro ethics' in practice to develop awareness of required standard of care / standard of conduct. • Collaborate with academia and/or Data & AI Ethics Board on best practice research and on development of relevant training and skills accreditation outside of a traditional academic context (e.g., professional continuous professional development). • Engage in Sandbox approaches to developing AI systems. • Liaise with sectoral regulators in relation to Regulatory guidance or legislative change.
Standards and Certification	• In collaboration with sectoral regulators or the "College of Regulators", develop standard templates / methodologies for Ethical Impact Assessments and self-assessments. • Identify existing relevant standards which are supportive of AI quality and AI Ethics principles such as data quality/accuracy and, where possible, provide certification to these standards or guidance on how certification can be achieved. • Support the development and accreditation of relevant and appropriate training to support the upskilling of regulatory bodies, policy makers, technology implementers, and wider society.
Data & AI Ethics Board & Sandbox	• Establish Data and AI Ethics Board as a multidisciplinary expert panel from industry and academia (domestic and international experts), with a supporting secretariat. This should be separate from the Regulatory functions. • Establish processes for Data and AI Ethics Board to advise Regulators and Standards Authority, liaise with academia and industry, and conduct own research into best practices and emerging ethical issues and technology trends. • Establish Thematic Regulatory Sandboxes. • Ensure Regulatory oversight and monitoring of Sandbox. • Implement a legislative response plan for issues raised by/encountered in Regulatory Sandbox projects. • Implement procedures to follow up on implementation of projects after Sandbox to ensure ethical principles and legal requirements are complied with.

Benefits, Issues, Risks, and Investment

BENEFITS

- Allows for a sectoral approach to AI regulation in Uganda.
- May enable more responsive regulatory responses to sectoral issues.
- Sectoral regulators are likely to have deeper understanding and insights into regulatory and ethical issues arising for regulated entities in the use of AI.
- Avoids pre-emptive codification of principles and practices in statute, allowing for a maturing of practices.
- Allows for principles to be "battle tested" before being codified in legislation.
- May help to avoid interoperability risks with other regional or international AI Ethics frameworks arising from legislative misalignment.

ISSUES

- Will require the identification of a lead 'coordinating' regulator.
- Regulatory sandbox administration/co-ordination will need to be carefully governed by a lead regulator.
- Will require strong collaboration with industry, academia, legislators, and regulatory bodies to maintain effective co-regulatory model.
- May still require the implementation of legislative framework to provide for enforcement or mandate/encourage engagement with the co-regulatory functions or to create clarity on civil liability that may arise in the event that standards of care defined in co-regulation are not met (e.g., recovery for material and non-material loss).

RISKS

- May not adapt to the reuse of AI models or processes across different sectors / industry domains.
- Co-regulatory models may be exposed to lobbying risk with respect to "Ethic of Organisation" and therefore require robust representation of societal stakeholders to represent "Ethic of Society".

INVESTIMENT

- Requires investment in resourcing and upskilling of multiple regulatory authorities.
- Requires investment in resourcing and upskilling the Standards Authority.
- Requires funding for the implementation of the Data and AI Ethics Board and the recruitment and training of members and secretariat.
- Regulatory Sandboxes will require funding to operate effectively.
- Development of interdisciplinary research groups and syllabuses in the university sector will require investment and funding (but is a key enabler and a necessary action to address skills gaps).
- Development of a Data Literacy/Digital Competence Framework will require contributions from different stakeholders.

6

RECOMMENDED NEXT STEPS

This report offers ten high-level recommendations that pave the way for future developments regardless of the Pathway chosen.

RECOMMENDATION 1:

Developing National AI strategy

There must be a clear statement of government strategy in terms of social value, societal unity, and social impact arising from the use of artificial intelligence and other data-driven technologies. Following the emerging trend of designing national AI Strategies, along with an ethical framework, Uganda can consider the opportunity of providing a policy response to the rapid advances in the field of AI, thus safeguarding its outstanding position as an anchor for digital transformation on the continent. Uganda is already well-positioned in many areas of AI, including data protection and cybersecurity. Therefore the possible AI strategy could build on existing strengths and make Uganda a leading regional center for AI, increasing the capacity and competitiveness of national industries and professionals and the attention of potential investors and development partners.

The development of the national AI strategy should build upon previous endeavours in this area, namely the Ethical AI Strategy Blueprint developed by the Ministry of ICT and National Guidance with input from the 4IR Taskforce with the support of UN Global Pulse. In addition, the UN resource guide on Resource Guide on AI strategies [49] could be consulted.

RECOMMENDATION 2:

Investing in AI literacy and research

Uganda can mobilise international support and encourage private investment in AI research and literacy to empower people to effectively use and interact with AI systems, reduce digital divides, stimulate ethical AI development and further understanding of AI-related social, legal and ethical implications. Moreover, Uganda should strive to build the capacity to deliver the ideas, technologies, and workforce of the future by providing training and supporting multi-disciplinary teams. Research about public perception of AI, professional conversations, and public consultation could lead to the co-creation of AI policies, standards and best practices.

Within this, it should be borne in mind that AI literacy must be built on foundations of general data literacy and digital competence in less novel areas of data management.

RECOMMENDATION 3:

Developing AI talent in Uganda

The gap between the demand and supply of AI skills remains significant. Well-resourced countries are already taking active steps to attract talent from all over the world. They offer a wide range of benefits and opportunities to highly skilled migrants. The national educational system needs to be adapted to new realities and strive to fill competence shortages. Through the partnership of national and international experts, professional programs and courses should be developed to build a new generation of AI leaders not only for Uganda, but also targeting African and Global labour market Training curriculums should not be limited to technology. They should enable a new workforce of self-determined individuals who know how to deal with both the technical as well as the ethical, societal and legal aspects of AI.

RECOMMENDATION 4:

Strengthening national regulators

While exploring the possible institutional model for AI oversight, the significance of building the capacity of existing institutions (such as Uganda Communications Commission, Personal Data Protection Office, National Information Technology Authority - Uganda and sectoral regulators) with specific tasks and powers in relation to AI should not be overlooked. They should be provided with sufficient resources and technical capacities to effectively oversee legally enforceable AI principles within their mandates. Close cooperation between regulators is essential to deliver common approaches and jointly address possible regulatory overlaps.

RECOMMENDATION 5:

Developing ethical framework guides and self-assessment tools

The availability of intelligible and straightforward guides and self-assessment online tools will help AI actors understand and address ethical considerations within their projects, conduct ethical assessments, and identify risks relevant to a particular AI system. Guides and assessment tools should help AI actors identify AI system elements that require further effort to be compliant with ethical principles and suggest whether and what kind of active measures may need to be taken to avoid and minimise those risks.

A number of such tools are available to inspire and inform the design relevant to Uganda, including ALTAI[50] by the High-Level Expert Group on AI set by the European Commission and the framework published by UK Government Digital Service[51].

RECOMMENDATION 6:

Active participation in International and Regional Fora

Uganda should closely observe and contribute to international and regional discussions concerning AI governance and initiatives that strive to ensure responsible stewardship of AI, development of binding legal instruments, technical standards, ethical frameworks, or strengthening oversight mechanisms. Active participation in international and regional fora will enable Uganda to swiftly adapt and modernise its legal, ethical and regulatory frameworks ensuring that AI systems do not undermine the societal values and fundamental freedoms enshrined in the constitution.

RECOMMENDATION 7:

Developing a Regulatory Sandbox Model

Uganda should consider the development of a thematic Regulatory Sandbox, aligned to the priorities of an AI Strategy, to support the evaluation of potential AI processes, the evolution of AI ethics principles, and the education of developers, regulators, and other stakeholders on the benefits and risks associated with the implementation of AI solutions.

To provide a clear research context within the context of data protection law, we recommend that these sandboxes be co-designed by a Data and AI Ethics Council and be executed in collaboration with relevant and appropriate academic partners in Uganda and internationally to promote knowledge transfer and skills development. We would also recommend that wider societal stakeholders are represented as part of the oversight of any sandbox.

Consideration should be given to how access to the Regulatory Sandbox will be managed and how any Sandbox will be funded. Uganda should consider a model where participants provide input contributions either through financial contributions or knowledge and skill transfer contributions-in-kind. Uganda should also consider how the operation of such a funding model could incentivize or support indigenous innovators (supporting Recommendation 3).

RECOMMENDATION 8:

Exploring the use of AI

For developing further policy and regulatory frameworks or incentives for businesses, including start-ups, it is crucial to understand the extent to which AI is used in various sectors and new dynamics. We recommend identifying effective and efficient methods for data collection and analysis. One possibility is a regular assessment of the penetration rate of AI in Uganda. This assessment may include company profiles, sales figures for AI applications, origin and use of data, and hardware.

RECOMMENDATION 9:

Investing in Social Education and Digital Competence to support Trust in AI.

The evolution of the Ethic of Society will require investment in social education and the development of awareness of the benefits of AI, how it works (in simple terms), and the potential issues and risks that communities will need to consider in the adoption of AI and the potential impacts to social norms that will arise from disruptive technologies.

This recommendation differs from Recommendation 3 as it does not relate to the development of AI talent and data management competencies in organisations in Uganda. Rather it relates to the development of social and societal understanding of technology. Therefore, this investment will need to consider different modes and methods of communicating information to social stakeholders, including issues of language and literacy.

RECOMMENDATION 10:

Establishing Data and AI Ethics Board

Uganda should establish an AI Ethics Council to act as a "steward" of the AI Ethics Principles and to co-ordinate independent research into best practices and standards for the ethical application of data and AI technologies to benefit society.

This Data and AI Ethics Council should have representation from relevant academic and industry stakeholders and should engage with national, regional, and international expertise as needed. The Data and AI Ethics Council will support Regulators, the Standards Authority, and policy makers through the provision of independent and unbiased expertise and insights. It may also have a supportive role for Regulatory Sandboxes.

ABBREVIATIONS AND ACRONYMS

AI
Artificial Intelligence

AU
African Union

CoE
Council of Europe

DPPA
Data Protection and Privacy Act (2019)

EU
European Union

GPA
Global Privacy Assembly

HITL
Human-in-the-loop

HOTL
Human-on-the-loop

HIC
Human-in-command

ICTz
Information, Communication and Technology

IR
Industrial Revolution

MoICT&NG
Ministry of ICT and National Guidance

OECD
Organisation for Economic Co-operation and Development

PDPO
Personal Data Protection Office

SDGs
Sustainable Development Goals

UN
United Nations

UNESCO
United Nations Educational, Scientific and Cultural Organization

WBG
World Bank Group

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The report is based on the previous work from Daragh O Brien (Castlebridge Associates) and Tamar Kaldani (Senior Data Protection Consultant), who prepared the above-mentioned report for Ghana. The adaptation of the report for Uganda was prepared with contributions from Emmanuel Mugabi (Pulse Lab Kampala, Uganda), Martin Gordon Mubangizi (Pulse Lab Kampala, Uganda), Ian Fry (UN Global Pulse, New York), and Caroline Alewaerts (UN Global Pulse, New York), and Liudmyla Romanoff (UN Global Pulse, New York). The report also benefited from the previous research and work conducted by Mike Pizzi, Kevin Klyman, Nana Asabere, Ernest Ostin and Swaib Kyanda.

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FOOTNOTES

Executive Summary

1)
See Appendix I: **Preliminary Assessment: AI Legislative and Policy Mapping in Uganda**

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2. Overview of Methodology and Analysis

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UNESCO Recommendation on the ethics of artificial intelligence, paragraph 2 (b).

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HITL refers to the capability for human intervention in every decision cycle of the system, which in many cases is neither possible nor desirable. HOTL refers to the capability for human intervention during the design cycle of the system and monitoring the system's operation. HIC refers to the capability to oversee the overall activity of the AI system (including its broader economic, societal, legal and ethical impact) and the ability to decide when and how to use the system in any particular situation. This can include the decision not to use an AI system in a particular situation, to establish levels of human discretion during the use of the system, or to ensure the ability to override a decision made by a system. Source: **Ethics Guidelines for Trustworthy AI developed by the High-Level Expert Group on Artificial Intelligence** set by the European Commission, page 16

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Data Protection and Privacy Act, 2019: www.google.com/url?q=https://ict.go.ug/wp-content/uploads/2019/03/Data-Protection-and-Privacy-Act-2019.pdf&sa=D&source=docs&ust=1634067276008000&usg=AOv-Vaw3vLiFxIFIyyU2BzRmbJE0f

22)
The 7 Principles of Universal Design universaldesign.ie/what-is-universal-design/the-7-principles/

23)
This does not necessarily imply that information about business models and intellectual property related to the AI system must always be openly available.

24)
Non-judicial and judicial remedies.

25)
Stakeholders include but are not limited to governments, intergovernmental organizations, the technical community, civil society, researchers and academia, media, education, policy-makers, private sector companies, human rights institutions and equality bodies, anti-discrimination monitoring bodies, and groups for youth and children, marginalised and indigenous people. Source: **UNESCO Recommendation on the ethics of artificial intelligence**, paragraph 47

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UNESCO has also produced a **Global Reference Framework for Digital Literacy:** uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf

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