Local synthesis of 1st and 2nd waves of societal discussions

Kenya - Health

In 2023, discussions on what it means to be human in the time of neuroscience (NS) and AI have been facilitated by NHNAI partners in 9 different countries. In each country, 3 lines of discussions have been opened to explore this question in the **3 thematic fields of education, health, and democracy**. Each partner then produced **3 local syntheses** reporting on the content of discussions in these 3 fields in the corresponding countries.[1]

This document presents **ideas of the local synthesis in Kenya**, about discussions on **health**, organized by Catholic University of Eastern Africa.

[1] For an exact total of 8*3 + 2 local syntheses. In Canada (Québec), Cégep Sainte-Foy organized discussions focused on Democracy and Education, but not on Health.

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Part 1: Salient ideas of 2023

Moral judgement (1 extract)

Description of the idea: AI and NS cannot fully replace human because they lack ethical reasoning, moral judgment, thus cannot make ethical decisions based on moral principles or values.

Corresponding extract

- AI does not have ethical reasoning, moral, and thus, cannot make ethical decisions based on moral principles or values. AI should help to reduce (human) physician/nursing errors in diagnosis and treatment of patients.

AI in the Health in the African context (2 extracts)

Description of the idea: In the African context, AI holds significant promise for transforming healthcare delivery, improving patient outcomes, and addressing the unique challenges faced by healthcare systems on the continent. However, AI has its own challenges; lack of emotional intelligence, and to empathize in the way that humans can and this is particularly important in the healthcare system for patient treatment

Corresponding extracts

- AI does not have emotional intelligence, thus cannot understand human emotions and empathize in the way that humans can and this is particularly important in the healthcare system for patient treatment in the African Context, counseling and patient satisfaction where empathy and emotional support are critical components.
- This is especially problematic in African environments because many communities are still affected by historical injustices and oppression.

Human disconnection in the health care (4 extracts)

Description of the idea: AI may not replace the human touch, as it has no ability to connect with others on a deeper level, build relationships, and provide a personal touch that machines cannot replicate.

Corresponding extracts

- AI may not replace the human touch, as it has no ability to connect with others on a deeper level, build relationships, and provide a personal touch that machines cannot replicate.

- Counseling and patient satisfaction where empathy and emotional support are critical components.
- AI and NS cannot fully replace people because they lack the complex comprehension of the human emotions, social situation, and cultural norms that are the concerns of many African environments that will enable them make wise decisions.
- Perhaps AI lacks imagination and creativity, as AI perform tasks based

Improving access to quality healthcare service for refugees (3 extracts)

Description of the idea: Using AI to improve access to quality healthcare services for refugees can be a game-changer, addressing many of the health challenges they face. For instance, medical photos to find the symptoms of illness like as tuberculosis or malaria, access to conventional healthcare service, and drones can be used to detected dangers in the camp hence becoming useful and help in early detection and warning system.

Corresponding extracts

- For instance, AI systems can examine medical photos to find the symptoms of illness like as tuberculosis or malaria, which are common among refugees and pastoral communities. Further AI can offer virtual health advice to the vulnerable who may not have access to conventional healthcare service
- AI can be useful for the refugees because systems such as drones can be used to detected dangers in the camp hence becoming useful and help in early detection and warning systems. Can also assist in delivering medical equipment, facilities, medical and other types of assistance.
- Due to the trauma of migration, refugees frequently have serious health issues, such as poor nutrition, serious mental health, and restricted access to health care.

Telemedicine (1 extract)

Description of the idea: Telemedicine is the healthcare services that remotely, using telecommunications technology. It encompasses a wide range of medical activities, including consultations, diagnosis, treatment, monitoring, and education, delivered over digital platforms such as video calls, audio calls, messaging apps, and online portals.

Corresponding extracts

- In nomadic communities the AI applications can be useful to assist in offering medical care. Telemedicine systems can be used to assist medical practitioners from these areas access advisor on medical procedures and other matters from experts who are not within physical reach.

Empowerment of PWDs to become independent (3 extracts)

Description of the idea: AI can play a significant role in empowering Persons with Disabilities (PWDs) to become more independent by providing innovative solutions that address their

specific needs and challenges. For instance, in the African context, pregnant women with disabilities disproportionately suffered due to lack of access to antenatal clinics associated with communication barriers. AI has greatly supported the pregnant women with disabilities to access antenatal clinic independently and instantly.

Corresponding extracts

- AI can assist people who are venerable because it can be used to assist them with becoming more independent for instance with the use of phone applications that help the blind, deaf and dumb.
- The innovative AI App leverages on data from globally renown research institutions and uses cutting edge technology to provide much needed assistance by providing special needs children and their care givers with much needed information in both English and Swahili, simplifying their journey. The digital companion app caters to special needs such as attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) care journey. The App can also be used by any Kenyan to access any information on health instantly. App also help people with physical disabilities. Increasing accessibility; AI technology can empower people living with limited physical mobility. AI-powered self-driving cars and other forms of autonomous transportation promise incredible freedom of mobility for house-bound individuals with disabilities.
- ALL App can be accessed anywhere in the world. Sign language interpreters can join from across the globe and provide the much-needed service for support in health services. Great support to the deaf women during pregnancy, found that deaf women were unsatisfied with antenatal care services and faced communication challenges, stigma and could express themselves. This, in turn, affected attendance and health outcomes. Tales of deaf mothers dying during childbirth because they could not communicate with their healthcare providers. Sometimes at the health facilities deaf people are often made to wait and receive service last because the service providers assume that the deaf require more time and effort, which is not true. Thus, deaf pregnant women remain vulnerable during pregnancy due to lack of access as well as communication barriers at antenatal clinics in Africa. The App has enabled the communication.

Building trust for acceptance of AI and better health outcomes (2 extracts)

Description of the idea: Indeed, building trust and acceptance in (AI) and (NS) among vulnerable communities is essential for the ethical and responsible deployment of these technologies in healthcare.

Corresponding extracts

- Building trust in AI and NS among vulnerable communities is crucial. Ensuring transparency and involving these communities in the development process can help build trust.
- Trust and Acceptance:

Improving infrastructure for better accessibility of healthcare service (5 extracts)

Description of the idea: Application of AI may require robust healthcare infrastructure which is a big challenge for most African countries. In most African countries where majority of vulnerable groups reside, healthcare infrastructure is underdeveloped. AI and NS solutions may require robust healthcare systems to be effective. Hence, in order for vulnerable groups to have better access to healthcare services, government and non-government organizations should mobilize resources to improve healthcare infrastructure.

Corresponding extracts

- In many regions where vulnerable groups reside, healthcare infrastructure may be underdeveloped. AI and NS solutions may require robust healthcare systems to be effective.
- Healthcare Infrastructure:
- Initiatives to provide access to these resources are essential.
- For instance, AI systems can examine medical photos to find the symptoms of illness like as tuberculosis or malaria, which are common among refugees and pastoral communities. Further AI can offer virtual health advice to the vulnerable who may not have access to conventional healthcare service
- Vulnerable groups may lack the resources (e.g., smartphones, internet access) necessary to fully benefit from AI and NS technologies

Human history (1 extract)

Description of the idea: In most African countries, injustices and inequalities exist in accessing social service notably health and education. Hence, when AI is used in the healthcare sector, addressing systematic inequalities is critically important.

Corresponding extracts

- This is especially problematic in African environments because many communities are still affected by historical injustices and oppression.

AI - Vulnerable people (1 extract)

Description of the idea: Individuals with disabilities may be disproportionately affected when AI is used for access to health-related services. People with disabilities may suffer from privacy issues, bias in the data used to train the computers, and discrimination as a result of the careless use of AI. Furthermore, when it comes to employment, people with disability can be left out unfairly because the AI checks have not been tested on people with disability.

Policies and guidelines concerning the use of AI and NS in the healthcare system must be developed to protect vulnerable populations.

Corresponding extracts

- Disproportionate impacts on persons with disabilities when AI is used for access to public and private services. The issue of privacy and data protection for vulnerable people, including those with AI is used irresponsibly it can cause problems for people with disabilities for example privacy, unfair decisions, bias in the information what is used to train the machines, discriminated against, needs to pay more than is fair. There are problems with AI being used to find the right person for a job when: a person doesn't check the AI decision people with disability can miss out in unfair ways, an online test or video to get a job is checked by AI. People with disability can be left out unfairly because the AI checks have not been tested on people with disability, a chat-bot is used for interviews to apply for a job, and this can be inaccessible for people who use a screen

Individual differences (1 extract)

Description of the idea: The individual differences play a crucial role in how people interact with and benefit from AI systems. Training tailored to individuals' needs and contexts is essential for maximizing the utility of these systems. Moreover, empowering individuals with the skills to monitor AI systems and understand their performance fosters a sense of ownership and accountability, leading to more effective utilization and feedback loops for improvement. By acknowledging and addressing individual differences, we can ensure that AI systems are truly inclusive and beneficial to all.

Corresponding extract

- Individuals who are expected to benefit from these systems need to be trained so that they are able to utilize the AI systems. Information should be useful contextually. People whose capacities have been built will also be able to monitor the systems and their performance.

Confidentiality / privacy when using AI (1 extract)

Description of the idea: Maintaining confidentiality and privacy is paramount when utilizing AI technologies, especially in sensitive domains such as healthcare, finance, and personal communications.

Corresponding extracts

- Disproportionate impacts on persons with disabilities when AI is used for access to public and private services. The issue of privacy and data protection for vulnerable people, including those with intellectual or psychosocial disabilities. When AI is used irresponsibly it can cause problems for people with disabilities for example privacy, unfair decisions, bias in the information what is used to train the machines, discriminated against, needs to pay more than is fair, There are problems with AI being used to find the right person for a job when: a person doesn't check the AI decision people with

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Automation of some tasks (1 extract)

Description of the idea: AI and NS have revolutionized automation across a spectrum of tasks, making processes more efficient and effective.

Corresponding extracts

- Certain tasks can be automated, and processed to be more efficient and effective due to AI and NS technologies.

AI Application in the Healthcare Sector (3 extracts)

Description of the idea: AI App leverages on data from globally renown research institutions and cutting edge technology to provide much needed assistance by providing special needs children, and their care givers, caters for the special needs such as attention deficit hyperactivity disorder and autism spectrum disorder, care journey, support people with physical disabilities, empower people living with limited physical mobility, and support the mobility of the blind, deaf and the dump.

Corresponding extracts

- The innovative AI App leverages on data from globally renown research institutions and uses cutting edge technology to provide much needed assistance by providing special needs children and their care givers with much needed information in both English and Swahili, simplifying their journey. The digital companion app caters to special needs such as attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) care journey. The App can also be used by any Kenyan to access any information on health instantly. App also help people with physical disabilities. Increasing accessibility; AI technology can empower people living with limited physical mobility. AI-powered self-driving cars and other forms of autonomous transportation promise incredible freedom of mobility for house-bound individuals with disabilities. AI-assisted smart home technology can be v
- AI App can be accessed anywhere in the world. Sign language interpreters can join from across the globe and provide the much-needed service for support in health services. Great support to the deaf women during pregnancy, found that deaf women were unsatisfied with antenatal care services and faced communication challenges, stigma and could express themselves. This, in turn, affected attendance and health outcomes. Tales of deaf mothers dying during childbirth because they could not communicate with their healthcare providers. Sometimes at the health facilities deaf people are often made to wait and receive service last because the service providers assume that the deaf require more time and effort, which is not true. Thus, deaf pregnant women remain vulnerable during pregnancy due to lack of access as well as communication barriers at antenatal clinics in Africa. The App has enabled the communication.

- AI can assist people who are venerable because it can be used to assist them with becoming more independent for instance with the use of phone applications that help the blind, deaf and dumb.

Application of AI in disease treatment (2 extracts)

Description of the idea: While AI and NS can significantly contribute to reducing human errors in diagnosis and treatment by providing accurate and timely insights based on data analysis, it lacks the ability to make ethical decisions or exercise moral judgment.

Corresponding extracts

- AI does not have ethical reasoning, moral, and thus, cannot make ethical decisions based on moral principles or values. AI should help to reduce (human) physician/nursing errors in diagnosis and treatment of patients.
- AI and NS assists in treating diseases affecting the vulnerable, which can be better identified early and be able to be treated. For instance, AI systems can examine medical photos to find the symptoms of illness like as tuberculosis or malaria, which are common among refugees and pastoral communities. Further AI can offer virtual health advice to the vulnerable who may not have access to conventional healthcare service

Application of AI in medical (early) diagnosis (3 extracts)

Description of the idea: The use of AI-based technologies will enhance disease diagnosis at an early stage its development which cannot be determined by human intelligence. For instance, AI-based devices can able to detect cancer, stroke, diabetes, and other diseases at their early stage of development, which enhances early establishment of treatment resulting in positive disease outcome.

Corresponding extracts

- AI in the healthcare system plays a substantial role in diagnosis and treatment of diseases.
- AI can help with the diagnosis of existing diseases, and detection of changes in populations and environment that could mean the eruption of new diseases that were not in existence before.
- AI can be useful for the refugees because systems such as drones can be used to detected dangers in the camp hence becoming useful and help in early detection and warning systems. Can also assist in delivering medical equipment, facilities, medical and other types of assistance.

Human/non-human collaboration for better health outcome (3 extracts)

Description of the idea: Human/non-human collaboration, especially between humans and AI and NS, holds immense promise for achieving better health outcomes in terms of enhanced diagnosis and treatment, remote monitoring and telemedicine, precision medicine, and streamlined healthcare processes. Effective interdisciplinary collaboration

between healthcare professionals, and technologists, is crucial for harnessing the full potential of these synergistic partnerships.

Corresponding extracts

- AI should help to reduce (human) physician/nursing errors in diagnosis and treatment of patients. Thus, AI cannot replace humans completely, but should in collaboration approach
- he ultimate aim of AI and NS should not completely replace human beings, but rather to enhance human capacities and well-being.
- Both people and machines should complement each other to serve humanity better.

Human replacement by machines (extracts 3)

Description of the idea: Health is a state of complete physical, mental, emotional and social well-being which requires a human connection to address these bio-psycho-social needs of a person. The use of AI in the healthcare system should augment human capacity to reduce errors in diagnosis and treatment of diseases. Hence, AI and NS cannot fully replace human because they lack the complex comprehension of the human emotions, social situation, and cultural norms.

Corresponding extracts

- AI may not replace the human touch, as it has no ability to connect with others on a deeper level, build relationships, and provide a personal touch that machines cannot replicate.
- AI and NS cannot fully replace people because they lack the complex comprehension of the human emotions, social situation, and cultural norms that are the concerns of many African environments that will enable them make wise decisions.
- AI does not have emotional intelligence, thus cannot understand human emotions and empathize in the way that humans can and this is particularly important in the healthcare system for patient treatment in the African Context, counseling and patient satisfaction where empathy and emotional support are critical components.

Enhancement (2 extracts)

Description of the idea: AI and NS technologies have the potential to be useful tools for assisting and enhancing human decision making in the field of health.

Corresponding extracts

- AI and NS technologies have the potential to be useful tools for assisting and enhancing human decision making in various fields like education, health, and governance, among others
- The ultimate aim of AI and NS should not completely replace human beings, but rather to enhance human capacities and well-being.

Part 2: Salient ideas of 2024

Medication management (extracts 2)

Description of the idea: AI plays a significant role in augmenting physicians' decision-making process for diagnoses, monitoring and treatment of diseases and therefore, improves disease outcomes. AI Can also assist in delivering medical equipment and other types of assistance. However, AI does not have ethical reasoning, moral, and thus, cannot make ethical decisions based on moral principles or values.AI in the healthcare industry has the potential to monitor medication management by alerting physicians and nurses.

Corresponding extracts

- AI and NS assists in treating diseases affecting the vulnerable, which can be better identified early and be able to be treated. For instance, AI systems can examine medical photos to find the symptoms of illness like as tuberculosis or malaria, which are common among refugees and pastoral communities. Further AI can offer virtual health advice to the vulnerable who may not have access to conventional healthcare service
- AI does not have ethical reasoning, moral, and thus, cannot make ethical decisions based on moral principles or values. AI should help to reduce (human) physician/nursing errors in diagnosis and treatment of patients.

Desirable: using AI to reduce medical errors (extracts 2)

Description of the idea: The use of AI in the healthcare system will definitely augment human capacity to reduce errors in diagnosis and treatment of diseases. However, capacity building for both users and operators (nurses, doctors) is necessary for the proper and efficient usage of AI and avoid AI related risks.

Corresponding extracts

- Establishment of frameworks that can support the implementation of AI-based methods for health and, capacity-building training to enhance and strengthen digital skills for healthcare providers is required.
- Capacity building of healthcare providers will ensure effectively use AI and NS technologies while retaining critical human oversight

Desirable: Application of AI in disease detection (extracts 3)

Description of the idea: The use of AI-based technologies will enhance disease diagnosis at an early stage its development which cannot be determined by human intelligence. For

instance, AI-based devices can able to detect cancer, stroke, diabetes, and other diseases at their early stage of development, which enhances early establishment of treatment resulting in positive disease outcome.

Corresponding extracts

- AI has the potential to improve well-being of the Africans. For instance AI will be used in detection, prediction, and treatment of mental health care
- AI ans NS play a significant role in augmenting doctors' decision-making process for detection, diagnoses and treatment of diseases and therefore, improves disease outcomes, operational efficiency and reduction of the medical co
- AI and NS can help with the diagnosis of existing diseases, and detection of changes in populations and environment that could mean the eruption of new diseases that were not in existence before.

AI efficiency (extracts 5)

Description of the idea: AI technology has great potential to transform healthcare in Africa by automating medical procedures. AI can collaborate with humans in handling time- and energy-consuming activities. Medical data automation makes patient information more instantly and smoothly accessible, which may open up the possibility of online consultations with doctors who are not physically present. This minimizes operational expense, and saves time by avoiding duplication of human efforts on paper-based work.

Corresponding extracts

- AI technology has great potential to transform healthcare in Africa by automating medical procedures.
- AI play a significant role in augmenting doctors' decision-making process, improves disease outcomes, operational efficiency and reduction of the medical co
- Medical data automation makes patient information more instantly and smoothly accessible, which may open up the possibility of online consultations with doctors who are not physically present
- This minimizes operational expense, and saves time by avoiding duplication of human efforts on paper-based work.

Opportunities and benefits in healthcare (exacts 7)

Description of the idea**:** In healthcare, AI-based application can greatly support healthcare professionals deliver high- quality care more efficiently and equitably. For example, AI can support less experienced healthcare professionals who may have limited resources to still deliver high- quality care through learning from other's experiences (e.g. identification of rare disease symptoms through massive database searches). However, in most African countries, healthcare infrastructure is underdeveloped and there is widespread inaccessibility

to electricity; which makes difficult to execute and sustain digital approaches in different sectors of the economy including healthcare.

Corresponding extracts

- In many regions where vulnerable groups reside, healthcare infrastructure may be underdeveloped
- AI and NS solutions may require robust healthcare systems to be effective.

- Vulnerable groups may lack the resources (e.g., smartphones, internet access) necessary to fully benefit from AI and NS technologies
- In many regions where vulnerable groups reside, healthcare infrastructure may be underdeveloped. AI and NS solutions may require robust healthcare systems to be effective.
- AI systems can examine medical photos to find the symptoms of illness like as tuberculosis or malaria, which are common among refugees and pastoral communities
- AI can offer virtual health advice to the vulnerable who may not have access to conventional healthcare service
- In nomadic communities the AI applications can be useful to assist in offering medical care. Telemedicine systems can be used to assist medical practitioners from these areas access advisor on medical procedures and other matters from experts who are not within physical reach.

Human replacement by machines (4 extracts)

Description of the idea: Health is a state of complete physical, mental, emotional and social well-being which requires a human connection to address these bio-psycho-social needs of a person. The use of AI in the healthcare system should augment human capacity to reduce errors in diagnosis and treatment of diseases. Hence, AI and NS cannot fully replace human because they lack the complex comprehension of the human emotions, social situation, and cultural norms.

Corresponding extracts

- The use of AI in the healthcare system should augment human capacity to reduce errors in diagnosis and treatment of diseases.
- Social network of Africans cannot be replaced by AI as the sick person remains in their social network and is taken care of within that network, for instance, Africans rarely use facilities such and hospices and homes for the elderly.
- AI does not have ethical reasoning, moral, and thus, cannot make ethical decisions based on moral principles or values. AI should help to reduce (human) physician/nursing errors in diagnosis and treatment of patients.
- AI and NS cannot fully replace people because they lack the complex comprehension of the human emotions, social situation, and cultural norms that are the concerns of many African environments that will enable them make wise decisions.

AI and social interactions (extracts 3)

Description of the idea: AI and NS assist and collaborate with humans to handle time consuming tasks and help prevent errors in diagnosis and treatment of diseases with better efficiency. However, AI lacks emotional, moral and social support. Specifically, in the African society, a person needs social connection, interpersonal communication and interaction. Hence, AI should remain a tool which complete, help, reinforce, enrich or support an activity or a task, but it should not replace the person and thus, replace the relation between two persons, like a doctor/nurse and patient relationship.

Corresponding extracts

- To ensure inclusivity of the use and benefits of AI in the healthcare system, policies that ensure equitable access to AI and NS innovations across all socio-economic groups must be developed.
- Public engagement during AI development process is essential to increase the uptake of AI utilization
- Public awareness is important on the benefits and limitations of AI and NS to build trust and finally to address misconceptions and fears through transparent dialogue.

AI - Vulnerable people (extracts 5)

Description of the idea: Vulnerable individuals with disabilities may be disproportionately affected when AI is used for access to health-related services. People with disabilities may also suffer from privacy issues, bias in the data used to train the computers, and discrimination as a result of the careless use of AI. Vulnerable groups may lack the resources (e.g., smartphones, internet access) necessary to fully benefit from AI and NS technologies. Furthermore, when it comes to employment, people with disability can be left out unfairly because the AI checks have not been tested on people with disability. Policies and guidelines concerning the use of AI and NS in the healthcare system must be developed to protect vulnerable populations.

Corresponding extracts

- AI can help vulnerable groups access healthcare service virtually.
- Vulnerable groups may lack the resources (e.g., smartphones, internet access) necessary to fully benefit from AI and NS technologies hence material support is required.
- Vulnerable groups may not have the required skills to use and benefit from the AI app. Hence technical support is required
- Support for resources such as smart phone and stable internet connection and training for basic skills to use AI-based devices is required for such communities.
- The issue of privacy and data protection for vulnerable people, including those with intellectual or psychosocial disabilities
- When AI is used irresponsibly it can cause problems for people with disabilities for example privacy, unfair decisions, bias in the information what is used to train the machines, discriminated against, needs to pay more than is fair

Need to enhance infrastructure (4 extracts)

Description of the idea: Application of AI may require robust healthcare infrastructure which is a big challenge for most African countries. In these countries where majority of vulnerable groups reside, healthcare infrastructure is underdeveloped. Hence, in order for vulnerable groups to have better access to healthcare services, government and non-government organizations should mobilize resources to improve healthcare infrastructure.

Corresponding extracts

- In many regions where vulnerable groups reside, healthcare infrastructure may be underdeveloped
- AI and NS solutions may require robust healthcare systems to be effective.
- Enhance healthcare infrastructure:
- Government and non-government organizations should mobilize resources to improve healthcare infrastructure

AI-digital divide (extracts 4)

Description of the idea: Digital divide is the major issues in most African Countries with uneven distribution of information and resources. Indeed, digital divides exist between African countries, urban and rural communities, educated and uneducated individuals, even between men and women. This will definitely cause inequalities, discrimination and exclusiveness when using AI.

Corresponding extracts

- Digital divides exist between African countries, urban and rural communities, educated and uneducated individuals, even between men and women.
- Digital divides will cause inequalities, discrimination and social exclusiveness when using AI.
- Government and non-government organization should put more efforts to address the disparities between and within African countries when AI is used
- Uneven distribution of information and resources

Ethical Risks in AI and Nanotechnology (extracts 3)

Description of the idea: The implementation of AI to healthcare practice may bring ethical and legal challenges to physicians, nurses and other healthcare providers. AI lacks ethical reasoning, moral judgment and interpersonal communication skills, thus cannot make ethical decisions based on moral principles and values. In order to resolve the ethical dilemma, physicians and nurses should take on the position of a guardian of the machine, acting as an active operator as opposed to a passive user. This calls for ethics committees or regulatory body to formulate uniform rules, standards, and codes of conduct that must be

agreed upon and continuously updated to ensure that the development of AI in medical care does not violate ethics.

Corresponding extracts

- Artificial Intelligence (AI) and Nanotechnology Systems (NS) hold immense potential to revolutionize healthcare, but they also present several risks, which can broadly be categorized into ethical, technical, regulatory, and societal domains.
- AI lacks ethical reasoning, moral judgment and interpersonal communication skills, thus cannot make ethical decisions based on moral principles and values.
- In terms of practice, it is necessary for ethics committees or regulatory body to formulate uniform rules, standards, and codes of conduct that must be agreed upon and continuously updated to ensure that the development of AI in medical care does not violate ethics.
- Ethical Risks for instance on the Bias and Discrimination: AI models can inherit biases from training data, leading to unfair outcomes or misdiagnoses for specific populations. Privacy Concerns: Sensitive health data used to train AI systems may be vulnerable to breaches or misuse. Informed Consent: Patients may not fully understand how AI or nanotechnology is used in their treatment, raising ethical concerns about transparency.

Regulatory framework (extracts 3)

Description of the idea: Legal framework is essential for safeguarding the confidentiality, integrity, and privacy of data acquired through the use of e-health applications. This calls for establishment of international and national legislation and rules governing the use of AI in the healthcare system. Hence, frameworks must be developed and adopted in order to successfully implement AI-based technology and protect the safety of both patients and healthcare providers.

Corresponding extract

- Realizing the full potential of AI in the healthcare industry requires collaboratively addressing and strengthening the policy and the regulatory frameworks, security and workforce capacity
- Establishment of frameworks that can support the implementation of AI-based methods for health and, capacity-building training to enhance and strengthen digital skills for health is required.
- Regulatory Risks that Lack of Standards: Rapid advancements outpace regulatory frameworks, creating gaps in safety and efficacy evaluations. Liability Issues: Determining accountability for errors or adverse effects involving AI or NS can be challenging. And the Global Disparities: Uneven regulation across countries might lead to misuse or inequitable access to technologies (

AI and data protection Policy (extracts 3)

Description of the idea: One of the main concerns related to the use of AI is data sharing which may violates patients' privacy. Despite the beneficial role of AI in the healthcare system, there is increased risk of privacy and confidentiality. Policies and guidelines

concerning data-sharing between healthcare providers and AI-companies must be developed to protect the privacy of patients.

Corresponding extracts

- Despite the beneficial role of AI in the healthcare system, there is increased risk of privacy and confidentiality
- Policies and guidelines concerning data-sharing between healthcare providers and AI-companies must be developed to protect the privacy of patients.
- International collaboration is required to create consistent regulations for AI and NS technologies, ensure on the Liability Clarification, to establish clear guidelines on accountability in case of adverse outcomes

AI Training (extracts 3)

Description of the idea: Application of AI and NS in the healthcare system requires high level of knowledge and skills by the healthcare providers as well as by the public in order to properly utilize it and reduce medical errors during disease diagnoses and treatment protocols. However, in most African countries, there is huge disparities in education. Such inequalities may hinder marginalized communities from the benefits of AI-based services. Human capacity building through training is necessary in order to monitor the AI system and attain high performance. Government and non-government organization should put more efforts in training and building capacity of individuals and reducing social inequities.

Corresponding extracts

- There is huge disparities in education in most African Countries which may hinder marginalized communities from the benefits of AI-based services. Human capacity building through training is necessary in order to monitor the AI system and attain high performance.
- Government and non-government organization should put more efforts in training and building capacity of individuals and reducing social inequities.
- The fundamental principles of AI must be taught to healthcare professionals so that they can apply the knowledge and skills to identify pathological abnormalities quickly and accurately in an ethical and efficient manner.

Refuges and AI in healthy (extracts 3)

Description of the idea: AI-based technologies can improve refuges' quality of life by facilitating access to healthcare facilities and early disease detection and treatment. For instance, AI devices can examine medical photos to find the symptoms of illness like malnutrition, tuberculosis, which are common among refugees. Such medical photos can be presented virtually to experts who are not within the physical reach. However, support for

resources such as smart phone and stable internet connection and training for basic skills to use AI-based devices is required for refugees to be fully benefited from AI application.

Corresponding extracts

- For instance, AI systems can examine medical photos to find the symptoms of illness like as tuberculosis or malaria, which are common among refugees and pastoral communities. Further AI can offer virtual health advice to the vulnerable who may not have access to conventional healthcare service
- AI can be useful for the refugees because systems such as drones can be used to detected dangers in the camp hence becoming useful and help in early detection and warning systems. Can also assist in delivering medical equipment, facilities, medical and other types of assistance.
- Due to the trauma of migration, refugees frequently have serious health issues, such as poor nutrition, serious mental health, and restricted access to health care.

Sustainable resources (extracts 2)

Description of the idea: In order to delivering an equitable and sustainable AI solutions for the African healthcare system, it is imperative to address the following fundamental issues. Support for resources such as smart phone and stable internet connection and training for basic skills to use AI-based devices is required for vulnerable groups to be fully benefited from AI application. The establishment of national and international rules and guidelines is necessary to shield vulnerable members of society from discrimination, unjust decisions, and privacy concerns arising from the application of AI.

Corresponding extracts

- To deliver equitable and sustainable AI solutions for the African healthcare system, it is imperative to get support for resources such as smart phone and stable internet connection and training for basic skills to use AI-based devices is required for vulnerable groups to be fully benefited from AI application.
- The establishment of national and international rules and guidelines is necessary to shield vulnerable members of society from discrimination, unjust decisions, and privacy concerns arising from the application of AI.

AI - discrimination (extracts 2)

Description of the idea: Individuals with disabilities may be disproportionately affected when AI is used for access to health-related services. People with disabilities may suffer from privacy issues, bias in the data used to train the computers, and discrimination as a result of the careless use of AI. Furthermore, when it comes to employment, people with disability can be left out unfairly because the AI checks have not been tested on people with disability.

Policies and guidelines concerning the use of AI and NS in the healthcare system must be developed to protect vulnerable populations.

Corresponding extracts

- If not properly planned, AI can discriminate vulnerable groups in accessing health services, education, employment and other social services.
- When AI is used irresponsibly it can cause problems for people with disabilities for example privacy, unfair decisions, bias in the information what is used to train the machines, discriminated against, needs to pay more than is fair.

Human identity (extracts 2)

Description of the idea: Treating people with dignity implies being sensitive to people's needs and doing one's best for them. This includes involving them in decision-making, respecting their individuality, giving them privacy and their own personal space. Our sense of identity may shift as we integrate technology into our lives.

Corresponding extracts

- Treating people with dignity includes involving them in decision-making, respecting their individuality, giving them privacy and their own personal space. Our sense of identity may shift as we integrate technology into our lives.
- Treating people with dignity implies being sensitive to people's needs and doing one's best for them. This includes involving them in decision-making, respecting their individuality, giving them privacy and their own personal space. Our sense of identity may shift as we integrate technology into our lives.

Culture conflict (extracts 2)

Description of the idea: AI-based device is task oriented, lacks understanding the ways people think about health and illness, individual behaviors and habits that influence health and cultural-oriented values. Cultural consideration is particularly important in the African population with different cultural; practices that required preservation, negotiation and restructuring. Hence, cultural consideration is required during the development and implementation of process of AL in the healthcare system.

Corresponding extracts

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Empowerment of PWDs (extracts 2)

Description of the idea: People with disabilities (PWDs) can be immensely benefited from the use of AI-based technology in accessing healthcare services. AI can assist people who are venerable because it can be used to assist them with becoming more independent for instance with the use of phone applications that help the blind, deaf and dumb. However, people with disabilities may not have the required resources and skills to use and benefit from the AI app. Hence material, and technical support is required.

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Data storage (extracts 1)

Description of the idea: The primary challenge with the implementation of AI in the African healthcare industry is that most available AI datasets are from people who differ from Africans genetically and physiologically, which may cause inconsistency when applied in the African population. This calls for the availability of local huge and high-quality dataset and training of healthcare professional.

Corresponding extract

- The primary challenge associated with the implementation of AI in the healthcare industry is that most available AI datasets are from people who differ from Africans genetically and physiologically, which may cause inconsistency when applied in the African population.