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ARTIFICIAL INTELLIGENCE FOR SUSTAINABILITY: INNOVATIONS IN BUSINESS AND FINANCIAL SERVICES

Abstract

Artificial Intelligence (AI) is transforming how we live and projecting how future should look like. AI is a form of technology developed to mimic human intelligence through decision making, problem solving, learning and improving abilities to meet the demands posited by the environment. The businesses must be agile enough to effectively respond to the markets that are volatile, uncertain, complex and ambiguous. As a result, AI is a critical tool that businesses should adopt to respond to these markets and to remain sustainable. Global agents such as United Nations must ensure that developing countries are not left behind on the implementation of AI as this might have negative implications on the markets of these countries.

Since AI is an object that should be embraced by humans, there are ethical concerns that must be addressed to ensure that it is effectively implemented. The implementation of AI should be facilitated in a manner that is safe for humans, and that will improve its uptake. AI researchers have an obligation to explore and explain for the society what AI means and the general ethics surrounding it, risks involved must be clearly articulated for the society. AI developers and implementers must ensure that the right to autonomy for the society is not diminished. This chapter is presenting sustainable AI ethics which constitutes of environmental impacts of AI, carbon emissions and AI modelling, data management, bias in AI, privacy and security, accountability and transparency, international perspectives, and future considerations of AI ethics.

Keywords: Artificial intelligence, Decision making, AI Applications, Privacy

Author

Dr. Sanele Enock Nene
Lecturer
Nursing Science
University of Johannesburg, Faculty of Health Sciences
University of Johannesburg
Doornfontein Campus
55 Beit Street Doornfontein 2094
snene@uj.ac.za

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I. INTRODUCTION

Artificial intelligence (AI) is transforming the markets globally influencing every field from information communications and technology, finance, healthcare, agriculture to marketing, transport, education, retail and mining. It is making a clear statement and impact "improving the way of doing things or one can say getting things done better and efficiently". Gerke, Minssen and Cohen (2022) mentioned economic forecasters have projected explosive growth in the AI market in the coming years. They added that one analysis suggested, the market size will increase more than 10-fold between 2014 and 2021. AI speed AI in markets is scary and unmatched, revolutionise our daily lives such as buying grocery and clothes without physically going to the shops, getting treated by the doctor without going to doctors rooms, getting a loan without going to the bank, monitoring underground mining services without being physically there, attending class and getting a degree without physical contact sessions with your lectures.

It is exciting times to be alive and experience such a revolution, however there are ethical considerations that must be considered for effective implementation of AI in the globe, and such ethics should not be favourable to certain countries or continents, meaning developing countries should not be left behind on this matter. This calls for sustainable AI ethics, yes it is of significance to ensure that AI and its' ethics are sustainable. This chapter is illuminating how this can be done.

Lawton (2023) define AI ethics as a system of moral principles and techniques intended to inform the development and responsible use of AI technologies. The society have a prerogative right to be protected from any harm that might surface from AI implementation. Therefore, AI ethics must be relevant for the market and sustainable as well. This chapter is discussing the sustainable AI ethics under the following headings; environmental impacts of AI, environmental impacts of AI, carbon emissions and AI modelling, data management, ethical concerns on AI and future considerations of ethics and AI.

II. ENVIRONMENTAL IMPACTS OF AI

AI has a huge impact on the environment, through it intelligent abilities it can take you to a place where you have never been while seating in your television room or in front of your laptop. Swab (2016) illuminate that AI introduces us to new practices of consuming technology that is influencing our behaviour as well as systems of production and consumption, offering the potential to support the preservation and regeneration of our natural environments. This author added that the systems that AI is bringing are very easy to use whether on a smartphone, assets, data and many other components and they create new methods of consuming goods and services. As a result, they increase the chances for businesses and individuals to create wealth, altering personal and professional wealth. For an example, previously you would need to go to printing shop to make a copy of your identity document, scan it and send it to your email address and then forward it to where it is required, that was taking a lot of time and resources, and that copy was also not sustainable, meaning next time when another copy is required you will have to do the same and incur the same costs. However, today you use your smart phone to take a picture of the document, scan it to portable document format (PDF) and email it to the recipient. This have a good impact on the

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environment because you don't have to keep a lot of papers with you. One just create a file and save all the necessary requirements and use them anytime, and wherever they are.

European Parliamentary Research Service (2020) posit that an increasing uptake of AI comes with increasing use of natural resources, energy demands as well as disposal of waste issues, however what is positive from this is that AI technologies are capable to improve our strategies of waste and resources management, yielding to great environmental benefits.

Through its capacity of visualised world, Chaudhary (2020) argue that AI outperform the most highly ranked human players in challenging games that require strategic decision making, long-term planning, strategic decision making, and reasoning based on the imperfect knowledge of the micro worlds of the games. Schwab (2016) reveal that drones are capable of sensing and responding to their environment, they alter their flight path to boycott collisions, and they have a capacity to perform tasks such as checking electric power lines or delivering medical supplies in war zones. In an agricultural environment drones are combined with data analytics, enabling more precise and efficient use of fertilizer and water. According to Chaudhary (2020) autonomous vehicle, does not see or encounter the physical environment directly but instead they process streams of data to simulate roads, signs, and pedestrians in a visualised world which is mapped to the physical world.

The future smart cities are envisaged by The Google subsidiary, Sidewalk Labs as a computer platform which has a digital layer coextensive within the physical environment and is analogous to the operating computer systems. Lawton (2023) argue that there are various subsystems which form the constituent parts of the city and urban environment such as street lighting, traffic lights, waste and other municipal services.

Global e-Sustainability Initiative and The Boston Consulting Group, Inc. (2020) AI has the ability to shift the business spectrum from the known practices to the new world of doing things, yes from the linear take-make-dispose model of resource use, which relies on large quantities of resources that are easily accessible, and towards a new industrial model where effective flows of materials, labour, energy, and now information interact with each other. For an example, through internet of things and intelligent assets, it is possible now to track the materials and energy flows to achieve exponential new efficiencies throughout the value chains. Of the $14.4 trillion in economic benefits that Cisco estimates will be realized from the Internet of Things in a decade from now, $2.7 trillion in value can be secured from elimination of waste and improved processes in supply chains and logistics (Global e-Sustainability Initiative and The Boston Consulting Group, Inc, 2020). According to GTC 2017 *(*2017), it is no longer a dream for the scientists to constructs detailed virtual worlds with simulated real-world environments and physics law in which robotics may learn and explore, hence these assist to avoid high costs that involved in assembling prototype robots.

III. CARBON EMISSIONS AND AI MODELLING

The global carbon emissions have increased rapidly over the past years. However, an abrupt decline of 8.8% was observed in the first half of 2020, and this was due to the lockdowns implemented curb the resurgence of Covid-19 pandemic (Liu, Ciais, Deng, Lei, Davis, Feng, and Schellnhuber, 2020). Carbon emissions are odourless, colourless non-poisonous gas formed by combustion of carbon and in the respiration of living organisms

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(Eurostat, 2017). Carbon dioxide emission is the most common gas, and according to Eurostat it stems from the burning of fossil fuels and the manufacture of cement. It is therefore interesting to understand how much can AI do to mitigate the effects of high carbon emissions. Liu et al. (2020) affirm that high carbon emissions have a huge impact on climate change, as a result it determines the amount of rain that falls, crops to be planted and sold, economy and poverty alleviation strategies. This is why most countries have immense themselves in the conversations on renewable energy. Now AI will be driving force of carbon emissions reduction and implementation of renewable energy. Reduction of carbon emissions means citizens will breathe a cleaner oxygen and this will improve the quality of their lives and lifespan.

In these conversations countries have committed themselves on how they will reduce the carbon emission to improve the quality of life of the citizens. Currently, the plan for UK, EU, and USA is to reach net zero by 2050, Russia and China by 2060, and India by 2070. These countries have limited time to reach these emission targets (Liu et al., 2021). This author further postulated to achieve this commitment of net zero it is expected that each country should reduce its' emissions by the same amount each year to reach. On the same vein, Paris has an agreement goal of curbing the emissions growth and contribute to the achievement of 1.5°C, as much as this goal is aggressive but it is more costly as well (Eurostat, 2017).

Global e-Sustainability Initiative and The Boston Consulting Group, Inc. (2020) projected by 2020, AI enabled solutions could reduce greenhouse gas emissions by 9.1 billion tonnes, representing 16.5% of the projected total in that year. Saker (2022) reveal that the purpose of AI is to enable the computers and machines to perform human intelligent functions such as decision making, problem solving, perception, and ensuring effective human communication. Before we expand on the AI model by Saker (2022) it is important to mention that this author enforced that AI based models are the foundation to building intelligent, automated and smart systems that will address the markets' contemporary dynamics. Five AI categories were taken into consideration to build the AI model:

- Analytical AI which is able to extract insights from data to develop recommendations, as a result contribute to data driven decision making.
- Functional AI which is similar to the analytical AI, however, it replaces the recommendations with actions, meaning it takes actions instead of providing recommendations.
- Interactive AI automate business communication without using the chatbots or personal assistants.
- Textual AI covers natural language processing or textual analytics allowing businesses to enjoy text recognition using machine translation, speech to text conversations, and capabilities of content generation.
- Visual AI is on augmented reality fields and computer visions.

To build AI based models Saker classified the following various AI techniques into ten categories; neural networks and deep learning, the machine learning, rule-based modelling and decision making, data mining knowledge discovery and advanced analytics, text mining and natural language processing, knowledge presentation, uncertainty reasoning

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and expert systems, visual analytics, computer vision, and pattern recognition, fuzzy logic-based approach, and hybrid, searching and optimization.

Real‑World Applications of AI

AI has been applied to resolve various issues with success over the past years include – whether in business, robotics, healthcare, cybersecurity, social media, virtual reality and many other areas of application (Saker, 2022). The potential real world AI applications are presented in Figure 1 below.

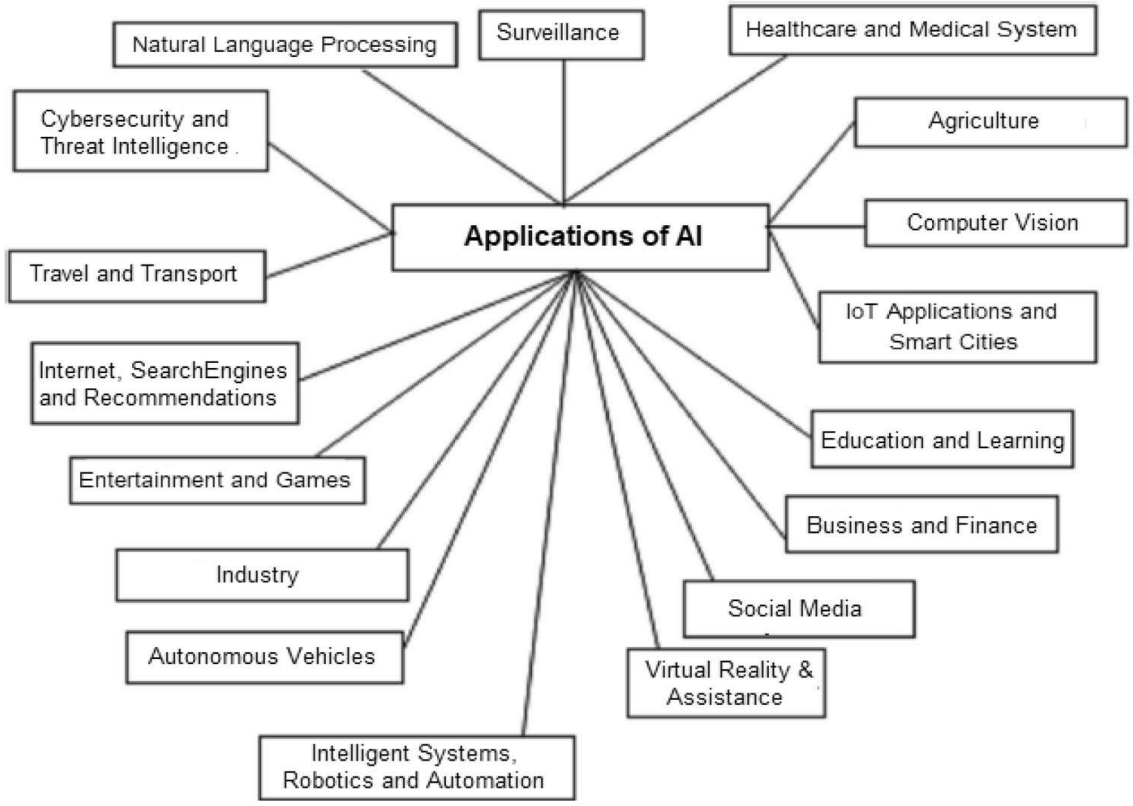

Figure 1: Potential Real world AI applications (Sarker 2022)

IV. DATA MANAGEMENT

Data management in AI means ensuring that the data used by the intelligent machines to achieve the purpose the machine is designed for whether to teach, make decisions, communicate information, distribute material and resources, diagnose and treat diseases etc. is protected and stored appropriately. European Parliamentary Research Service (2020) point out that AI data management is a costing initiative and as a result, owners of AI-driven companies are set disproportionately benefit from this. However, Schwab (2016) post that the storage of data has evolved over the past years, and a number of companies have decided to store data for free for its users to access it anytime they need it. For those companies who are still storing the data at a fee, the prices have dropped exponentially, said Schwab (2016). Users of data keep on producing the content without worrying about the storage or even deciding to delete some their data.

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The above mentioned author orientated us to the advantages and disadvantages of data storage:

Advantages

1. Legal systems
2. Efficiency in business operations
3. History scholarship/academia
4. Extension of personal memory limitations

Disadvantages

1. Privacy surveillance
2. Increased content creation, sharing and consumption
3. Eternal memory, then there is room for new data

Gerke et al. (2020) point out that it is necessary to share more data as this can assist to exponentially increase the uptake of AI. Minssen and Schovsbo (2018) annotates sensitive personal information, lack of trust, protection of commercial or previous spending on data quality are amongst the reasons of other companies to become reluctant to share data. Richter and Slowinski (2019) suggest that legal and ethical frameworks on AI data management may be the solution to the concerns of data storage and management, and such frameworks should promote should promote and also incentivize data sharing using data sharing intermediaries and private-public sector partnerships while ensuring data privacy that is adequate. Minssen and Schovsbo (2018) added that companies, agencies and providers have to consider whom they can collaborate with using which dataset and on which terms are they deciding to share their data.

Burbidge (2017) and Minssen and Schovsbo (2018) argue that it is very expensive to translate AI and big data into real world products, services, and processes that are effective and safe. It is of this reason that the commercial protection of AI and data driven technologies are now a critical topic in the organisations within the various sectors (The Economist, 2022). Burbidge (2017) and Minssen and Schovsbo (2018) opine that AI and data that drives it can be protected using various intellectual property rights which consist of copyrights, database rights, combination of long contracts, trade secrets, personal data integrity rights and competition law.

V. ETHICAL CONCERNS ON AI

In the last five years has been a public debate, shifting from being a concern for academics and politicians. (European Parliamentary Research Service, 2020). Academics and AI developers have an obligation to research and investigate AI technologies to ensure that they are safe for public consumption. While politicians are expected to deploy AI to different departments at a manageable scale. International Bioethics Committee (2017) and WHO (2021) raised a concern of no specific global ethical principles on AI used in healthcare, this came at a point where AI uptake was scaling up in this sector. The European Commission (2018) state it is dangerous to allow advent of high technologies systems and software such as AI that operate increasingly independent of humans executing tasks that require human

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intelligence that do not warrant special moral reflection. From Miller (2019) we learn that if AI concerns, for an example lack of trust from the public members are not addressed, this will result to reduced or rejection of AI uptake.

We can turn a blind eye to the impact of AI in our society. The fact that there is an increasing ubiquity of AI technologies including smartphones which are AI encapsulated that most of us and most sectors rely on daily, including industries such as policing, transportation, manufacturing, agriculture, healthcare, judiciary, leisure, and finance has promoted enormous national and international initiatives (European Parliamentary Research Service, 2020). These initiatives must however be ethical to ensure that the deployment of AI is acceptable to the public.

Barton, Woetzel, Seong and Tlan (2016) and Schacht (2019) concluded that AI academics must not just explore what AI means for the society and how to implement it, but they must also explore the general ethics surrounding AI, how a potential code of ethics should look like and not dismiss the fact that society can be at risk when AI is not carefully handled.

1. International Perspectives

The United States government reports on AI under the leadership of president Barack Obama emphasized among other things the importance of AI applications that are safe and fair and that are good for the public (US Government, The National Artificial Intelligence Research and Development Strategic Plan 2016; Gerke et al., 2020). In one of these reports a need to improve transparency, fairness, and accountability by design and building ethical AI is stressed. The White House (2020) published a graft on guidance for the regulation of AI and this draft consisted of ten principles to be considered by agencies when developing approaches to AI applications, and these are:

- Public involvement
- Public trust in AI
- Benefits and costs involved
- Flexibility
- Scientific integrity
- Safety and security
- Fairness and non-discrimination
- Transparency and disclosure
- Interagency coordination and
- Risk assessment and management

For Europe in April 2018, the European Commission adopted its AI strategy (Gerke et al., 2020). In this strategy the commission launched a European initiative on AI for the purpose to inter alia and ensure an appropriate legal and ethical framework by establishing European Alliance and developing the guidelines for AI ethics (European Commission, 2018). The slogan that was promoted by these guidelines is ‘Trustworthy AI’, and it consisted of seven key requirements that must be fulfilled by AI systems for them to be deemed trustworthy.

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The key requirements are mentioned next.

- Accountability
- Human agency and oversights
- Diversity, non-discrimination and fairness
- Privacy and data governance
- Technical robustness and safety
- Transparency
- Environmental and societal well-being

The Chinese AI competence has drawn a lot of attention from the international society, however, the discussions on AI ethics in China are ongoing and are actually being understudies by foreign scholars (Zhu, 2022). In their New Generation Artificial Intelligence Development Plan 2017 publication, Chinese government has expressed firm intention on addressing the AI ethical issues which calls for more research on ethical, legal and social issues from AI with a purpose to develop a legislation system and ethical frameworks to ensure healthy development of AI (State Council, 2017). According to Artificial Intelligence Industry Alliance (2019), Beijing Academy of Artificial Intelligence (2019) and Ministry of Science and Technology (2019) there are three comprehensive legal documents for China government on AI ethics, namely Joint Pledge on Self-discipline in the AI Industry from AI Industry Alliance, Beijing AI Principles from Beijing Academy of AI and Governance Principles for a New Generation of AI: Develop Responsible AI from Ministry of Science and Technology. In addition to the five principles on AI ethics listed by these documents diversity, inclusivity and open and sharing are the key principles emphasized, stressing the importance of cooperation across domains, borders and disciplines (Artificial Intelligence Industry Alliance, 2019; Beijing Academy of Artificial Intelligence, 2019; Ministry of Science and Technology, 2019).

Africa as a developing continent is still behind on AI deployment, the countries in this continent are still struggling with serious challenges such as hunger and poverty, consequently technology has been not a priority for the longest time. However, in the past ten years an uptake for technologies such as AI has been observed in Africa, hence AI is no longer foreign for African people. On that note it is the developing countries that has identified economic opportunities and are at forefront on the deployment of AI in Africa. These developed countries are unfortunately using their countries data to develop AI applications and to implement them for African people and these applications are therefore bias and not directly talking to African people as they are not tailor made for them. This is confirmed by Zhu (2022) AI developers must contextualise their AI applications because different cultural, interests and political contexts have distinct ethical implications and social impacts depending on the region. Fung and Etienne (2021) added the prescribed methodologies may vary greatly among different societies even thou we are all advocating for same principles. In support of this Hagerty and Rubinov (2019), ÓhÉigeartaigh, Whittlestone, Liu, Zeng,and Liu (2020) proclaim there is a lack of AI ethics research focusing on the regions outside West and this restrain diversity and inclusivity on academic debates and antagonising the global governance of AI.

From this the United Nations had to embark on the conversations on AI ethics for the African contexts. In surfaced from these conversations that in Africa, South Africa, Tunisia,

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Uganda and Ghana are already at work developing strategies on data protection and AI ethics, and the core question is which AI ethical approaches are appropriate for African people? (UN Global Price, 2019). The general consensus that was reached from these conversations on AI for Africa is the legal and ethical frameworks on AI ethics must be developed and implemented together with sustainable mechanisms to unlock the availability and value of data to improve AI uptake while mitigating possible harm for African people.

An important global question on AI ethics is how the developers, manufacturers, and operators should develop and deploy AI technologies to mitigate ethical harms that can emanate from poor design or inappropriate implementation (European Parliamentary Research Service, 2020). Consequently, this author outline that the scope of AI ethics spans immediate, here and now concern about, for an example, data bias, privacy and security in current AI systems.

2. Bias in AI

As AI was first developed from the West, the data that is available is more from the West, and this affects the inclusivity of other regions. This is confirmed by Wang (2020), Lin and Chen (2020) and Pan and Yang (2020) as they posit AI ethics are questionable as its algorithms are discriminating other population, these algorithms are retrieving the data from the West region in most searches. European Parliamentary Research Service (2020) argue that for a public to gain trust from AI – its algorithms must be impartial and fair, and as more decisions are delegated to AI, such decisions must be fee from discrimination and bias. This author further stated that whether it's a decision for university admissions, credit rating for loan companies, or CV filtering for a job interview – it is essential that these decisions are fair and do not aggravate the existing social inequalities. It is of this reason that Singapore government developed the framework on ethics of AI to mitigate bias in datasets (AI Singapore, 2018). The IEESA Standards Association (2023) purpose of AI ethics must be assist the developers of algorithms to make the ways that are explicit seeking to mitigate or eradicate the risk of bias in the products they are preparing for the market. Van Wynsberghe (2021) argue that biases in AI models is caused by a representation in training that is insufficient.

3. Privacy and Security

Privacy and security are more sensitive as failure to protect personal information may result to serious implications such hacked personal accounts, financial loss, deformation of character etc. Nicolau (2019) is in agreement with this point by alluding privacy and security on personal data is a pivotal thing that should considered while interacting with AI. Elaborating more on this this author mentioned AI is very good to collect personal data that may be useful not just for one activity but for other reasons as well, whether the information is on physiological or physical identity, medical, physical address, contact numbers, and digital codes of accession. The protection of all this information must be ensured by the system developers and those who are operating the system. Africa has taken a great initiative on AI, they have developed a white paper which suggest that AI has the potential to solve some of the most challenging issues in Sub-Saharan Africa (Access Partnership, 2018). This document lists laws on data privacy and security and this suggest for international data standards to be developed to ensure the privacy and security of the individuals is not compromised. In support of this IEEE SA (2023) annotated that AI developers and leaders

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must establish ethical standards on personal data in the processed of software engineering, and these processes should provide privacy impact assessments and the checklist for the software developers using the personal information.

Isaac Asimov a science fiction writer in 1942 developed three laws of robotics; i) A robot cannot allow a man to be injured or cannot cause harm to a man, ii) A robot must follow the orders from a man unless such orders are against the first law, and iii) The robot must protect itself but this protection must not be against the first and second laws. European Parliamentary Research Service (2020) attest that electricity, atomic energy, and fire are all risky and can cause harm to people and kill them if used inappropriately, they can however save lives, help people and improve the quality of their life when they are used appropriately.

Brown (2018), Ross and Swetlitz (2018), IBM (2020) Gerke et al. (2020) all agree that privacy and security are the biggest ethical challenges in healthcare, protection of medical records and ensuring non-maleficence in all clinical procedures whether it is diagnostic or treatment related procedures must be a priority for all healthcare stakeholders. In most cases we consider physical, emotional, and psychological harm and we forget about the social or financial harm, introduction of AI has a serious financial harm as most activities in all the sectors AI is penetrating are being automated. European Parliamentary Research Service (2020) shared the same sentiment AI is causing work disruption or loss of jobs for many humans, but rather than giving focus to number of jobs lost or gained, change in traditional employment structure must happen to lighten the effects of automation.

4. Accountability and Transparency

It is difficult to discuss accountability without trust; accountable systems or organisations are trusted by their customers. Hence Dignum (2018) elicit that as AI is changing our daily lives and taking over in the most sectors, the AI systems must be implemented in a manner that build trust and understanding and in a manner that is transparent for the public. As trust can only be attained through transparency, accountability and fairness, the AI systems must therefore follow the fundamental human principles and values (European Parliamentary Research Service, 2020). European Commission (2017) argue that we cannot deny that AI evoke ambivalence, raise concern and unease, even thou it is largely accepted by the most population especially in the developed countries like Europe.

AI systems must be accountable, meaning in case a machine or a robot is cause harm to someone or make a mistake, the developers, designer or company selling the AI must be answerable, and the victim must be compensated accordingly (European Parliamentary Research Service, 2020). AI should not be designed to favour a specific population; as a result, it must be clear why does an applicant do not qualify for a loan or for university admission or did not pass the multiple choice questions. Sample (2017) shared that in America a computer program assessed the performance of teachers in Huston by making a comparison on their students' scores against the average of the state, and prizes were awarded to those with high ratings while those who got low ratings were dismissed. Meaning, the expectations on the performance of the teachers had to be first explained to them so that what AI system was measuring is clear, fair and practical. This is confirmed by AI Now Institute (2018) as they reported that AI should pass the pre-release trials and be monitored

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continuously to ensure that it is not just remaining safe but transparent as well, and faults must be swiftly corrected.

VI. FUTURE CONSIDERATIONS OF AI ETHICS

Before we sum up with future considerations of AI ethics it is important to note that governments in different regions are facing challenges which make the adoption of AI difficult. According to World Economic Forum there are five major roadblocks to adoption of AI by the government (Torres Santeli & Gerdon, 2019):

- The ecosystem of AI - the AI market is rapidly volatile and there are various companies operating in this space.
- Procurement systems - algorithms are treated by the private sector as an intellectual property, as a result it is difficult for the government to customise them accordingly.
- Effective usage of data – lack of understanding the infrastructure of data and inability to implement processes of data governance.
- Legacy culture – in government it is difficult to adopt transformative technology than in the private sector because employees are not motivated and emancipated to take risks and innovate.
- Data and AI skills- it is difficult for governments with smaller human resource budgets than macro companies to attract candidates with relevant skills to assist with the development of first rate AI solutions.

However, these challenges should not dim the brightness of the future of AI around the globe. Sarker (2022) alluded that AI is influencing the future of every sector and every person in the world. It is now and will continue to be the driving force of the technologies developed for industrial automation, agriculture, internet of things applications, medical applications, cybersecurity etc. Lin and Chen (2020) if we are to guarantee the future of AI, the call from academics echoing on the reduction of misuse of AI system should be attended and given the urgency it deserves. At the 2018 meeting of the G7 in Charlevoix, Canada, the leaders of the G7 (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States) committed on the following 12 principles for AI to ensure that it sustainable and relevant for the future (G7 Canadian Presidency, 2018).

- Support the education and training thus skills development for the workforce.
- Support initiatives that promote trust in AI focusing on countering harmful stereotypes and ensuring gender equality.
- Facilitate collective dialogues and conversations on AI innovation advancements to improve trust and uptake.
- Promote investment on AI research and development that generates public test in new technologies and support economic growth.
- Promote the use AI by the small and medium businesses.
- Promote AI that is human centred and commercial adoption of AI and continue to advance appropriate ethical, technical and technologically neutral techniques.
- Support and involve marginalised groups including woman, in the development and implementation.
- Foster initiatives that improve digital security and develop code of conduct.

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- Ensure support of an open market environment for a free flow of data while maintaining privacy and security of data.
- Encourage investments that are on AI.
- Promote active labour policies, workforce development and training programmes to develop the skills required for new jobs.
- Ensure that there is development of frameworks for privacy and data protection.

The World Economic Forum (2019a) in October 2019 developed and released a framework for developing a national AI strategy to guide the governments who are in the process to develop their AI strategy. In this framework the Economic Forum concluded that it is the only way to minimum viable AI strategy and it consist of four main stages; i) Long-term strategic priorities assessment, ii) Set national goals and their targets, iii) creation of plans for essential strategic elements and iv) developing the implementation plan. From Vanian (2019) we learn that the World Economic Forum made an announcement on plans to develop an AI toolkit that will assist the businesses to best implement AI and to create own ethics councils.

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