

# Role of Artificial Intelligence (AI) in Central Banking:

Implications for COMESA Member Central Banks

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## Introduction

Artificial intelligence (AI) uses computing to create intelligence artificially and is described as the ability of machines to imitate human intelligence. It entails a collection of tools that learn with given data and understand patterns and interactions between series and values<sup>1</sup>. AI solutions depend on existing physical digital infrastructure from massive data bases on servers, to fiber optic cables and cell towers, to mobile phones in peoples' hands (Lin, 2019). AI has been around for some time in its basic form, which could study data, learn from it, and make autonomous decisions, that hopefully, continuously got better and accurate. However, its predictive power remained weak and could not predict unforeseen events like credit crisis. AI has evolved to what is being referred to as "generative AI", which is more powerful, can absorb massive data, learn from it, make its own decisions, with capabilities to study the data and develop its own computer codes.

With AI, machines are being trained to be the best artists, best engineers, best economists, etc. (Shabsigh and Boukherouaa, 2023). Using AI, machines are imitating human intelligence with unprecedented precision, pushing boundaries of machine capabilities. This is leading to the current AI technology being referred to as the fourth industrial revolution, as AI takes up routine processes in industries, understand and interpret complex data patterns and is unleashing a new wave of creativity and

<sup>1</sup> AI techniques include Naïve Bayes, k-Nearest-Neighbors (k-NN), Neural Network, Support Vector Machine (SVM), K-means, Random Forest, among others.

productivity never seen before in human history.

AI gives a breath to innovative sources of information that have not been used much (such as texts) for better approximation of people sentiments and expectations from the economy, Central Bank actions and related matters. AI applications are unique and have the potential to give more precise results, especially for micro-level, rich and granular data. With tools like ChatGPT, Chatbots and Natural Language Processing (NLP), AI is giving machines new skills such as predicting outcomes, recognizing images, and even attempting to give meaning to outcomes.

Natural Language Processing support analysis of text (news, social networks etc.) to evaluate public reaction to say Central Bank policy and actions, or in their explanatory research work. Others like web scrapping take real time price data directly from the retail websites and use this data as a complement to the official price level data. The Bank of England, Bank of Canada, and Central Bank of Indonesia, among other Central Banks, currently use web scrapping for now casting retail prices.

How these developments in AI are impacting on Central Banks is still an active area of research, mainly because it is too early to know for sure the extent to which AI will affect Central Banking. But it is expected that Central Banks will somehow respond to AI given the unstoppable inroads that AI is making on financial institutions, with most of them already using the AI technology to improve efficiency and serve their customers better. This article sheds light on the role of AI in Central Banking and draws some policy implications for Central Banks in the COMESA region.

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### Examples of AI Use Cases

Artificial Intelligence is evolving rapidly, and it is promising to reshape human interactions in a very profound way. Current deployment of AI has led to innovations like Alexa digital assistant technology and self-driving cars, among other groundbreaking innovations. In the creative industry, AI has advanced to the point where it can autonomously craft scripts, complete with stage direction and even generate scenes like science fiction. In production, AI is performing tasks too complex for humans. Businesses are also deploying it to build, launch and scale up their operations. Companies like Uber (to connect drivers and riders), Netflix (to predict preferences), Airbnb (to connect customers with preferred accommodation) are among the successful startups due to deployment of AI. Therefore, AI is here and impacting lives daily. It is being deployed in human resource function, sieving through reports, and

helping in making quick decisions, for instance, in determining whether a prospective hire fits in with the company's culture or not. It may also filter through a person's work history and decide either to promote the person, give him/her a bonus or shares in the company. Labor markets can be approximated and now casted using job adverts and job search density data using AI (Veloso *et al.* 2021).

In finance, AI is being used to help in wealth management, detect changes in transaction patterns, isolate red flags and detect fraud, which humans can easily miss. It is also assisting in task automation and better prediction and assessment of loan risks. AI is being deployed in E-commerce, where based on customer browsing history, preferences, and interest, it can recommend personalized shopping. It is also being used for credit cards fraud detection by considering usage patterns and customer reviews. In the fashion industry, AI analyzes customers' preferences, social media interactions and past purchases to suggest outfits compatible with individual unique styles. The use of AI - augmented reality permit people to fit clothes virtually from the comfort of their homes before making a purchase, reducing uncertainty associated with online shopping. It is also being deployed to predict upcoming fashion trends by examining customer preferences and behavior patterns.

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Artificial Intelligence is finding its way in urban homes designs through what is referred to as AI-urbanism, which is a new way of shaping, running and governing cities. AI-urbanism does not only quantify (as smart cities technologies do through Internet of Things, e.g. to tell how much energy is consumed in a house or city) but, it explains why and how certain events take place. The cities of the future therefore entail humans ceding some decisions to machines such as having self-driving vehicles transporting people, robots cooking and serving people and algorithms predicting human behavior at every turn to anticipate needs.

AI is currently being deployed in cities for traffic management and enforcement of traffic regulations. It is also behind the GPS technology that provide accurate, timely and detailed navigation information. AI is also being used in face recognition in phones,

laptops, PCs, and other high security areas to provide secure access. In education, AI is being deployed for non-educational tasks like automating personalized messages to students, grading papers, facilitating parents and guardians' interactions etc. (Simison, 2023).

Moreover, AI is the technology behind social media platforms like Facebook, Instagram, and X. In these platforms, it can determine what to post, understand conversations better, translate posts from different languages automatically, detect fraud, remove propaganda and hateful content, among others. Aiken *et al*, (2022) study found that using AI system processed data from satellites, mobile phones companies could identify villages with low balances on their phones (as a sign of poverty) through aerial imagery and mobile subscribers. Testing based on these poverty signatures helped ensure that cash transfers reached households with the greatest need. It is also being deployed in health care to analyze medical data, diagnose diseases, identify cancer cells, and provide personalized treatment. AI in telemedicine is bridging the gap in rural health care accessibility, transforming patient care and medical research in many countries. It is revolutionizing farming practices with AI powered tools, improving crop management, optimizing fertilizer use and bolstering irrigation efficiency, thereby boosting productivity and enhancing food security in the face of climate change (Ozili, 2023).

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### **Investment firms are also deploying AI to sieve through huge volumes of data to detect any shifts in stock prices and market sentiments**

Investment firms are also deploying AI to sieve through huge volumes of data to detect any shifts in stock prices and market sentiments, to come up with more creative investment strategies, and to match capital deployment to investment opportunities. Using "trading bots", it is also being applied in making investment decisions. Also, AI is being used in "Chat bots" to provide responses, resolve customer issues, improve customer service, and provide continuous nonstop support. Services sectors such as insurance and entertainment are also deploying it to create personalized policies that align more closely with individual needs and preferences (Tadapaneni, 2019).

### **Opportunities/benefits of using AI in Central Banks**

Even though AI has been in application for several years in Central Banks, especially in analyzing market trends and customizing financial products, the current application is different. AI is now digging deeper, interpreting complex data in a more creative manner by bringing out underlying relationships, doing forecasts, predictions and even

providing initial interpretations. The intrinsic beauty of using AI is the trust people seem to have that it reflects unconscious judgement that humans are fallible, while machines are objective, logical and better decision makers. People believe that AI will never have an off day or deliberately cheat the system or try to hide facts (Chakraborty and Joseph, 2017). This section highlights some of the key opportunities/benefits of using AI technology for Central Banks. COMESA member Central Banks:

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- (i) Have or are in the process of transitioning to inflation targeting, which has redefined how they conduct their role as regulators. One of the redefined roles is communication. Effective communication by Central Banks helps anchor expectations and guide markets by ensuring that the public understands policy actions. The use of AI can ensure more effective communication by Central Banks. AI deployment can quickly analyze large amounts of data and communicate key trends and patterns. It can analyze sentiments by filtering through voluminous data (texts, pictures, videos etc.) and monitor beliefs about the objectives of policy actions. This can assist Central Banks shape communication, redirect, and anchor expectations and help shape their engagement with the public (Doerr and Maria, 2021).
  - (ii) Can deploy AI to analyze economic data, come up with complex models and derive policy insights in a new way. It can easily identify trends and risks faster than the human brain. AI can sieve through vast amounts of data to refine economic forecasts and better monitor risks including fraud. It can therefore assist Central Banks in the COMESA region to better understand and model economic interactions and provide forecasts from highly complex and voluminous economic and social data. AI automation can help Central Banks process and analyze such huge data sets, releasing staff to handle other decision-making centered tasks. It can help establish non-linear relationships and important hidden patterns and gain insights from such complex and voluminous data sets, allowing such data to be included in Central Banks fold and analysis, which would otherwise not be the case without AI. Several Central Banks in advanced countries are already conducting nowcasting using AI (e.g. Bank of England and Bank of Canada). AI is therefore giving Central Banks new opportunities and possibilities for forecasting, analysis, and processing of data (Doerr and Maria, 2021).
  - (iii) Using AI can offer more efficient oversight of the banking sector by, among

others, better detecting bank and systemic risks by robust processing and analyzing financial data. By being able to accommodate voluminous data combined with AI analytical capabilities, Central Banks will detect early warning signs for financial distress before it happens and initiate corrective measures. AI provides an opportunity for Central Banks to give almost a real-time snapshot of the economy, which can be used to develop short-run strategies and adjust them for the long-run. With financial institutions already using AI to understand micro-level data to remain competitive, Central Banks with the help of AI can use this data as well, to better understand the behavior of commercial banks and efficiently perform regulatory and supervisory tasks.

- (iv) With the assistance of AI can enhance stress testing by developing complex and large number of simulations under many and complex scenarios. AI can improve fraud detection and anti-money laundering activities more efficiently and faster, by detecting suspicious patterns and the next move by fraudsters, thereby better anticipating sources of risks for commercial banks and the entire financial system, necessary to mitigate financial instability.
- (v) Using AI can enhance drafting and evaluation of policy options, examine how proposed regulations affects customers behavior and their risk appetite, conduct rigorous impact assessments of new regulations, and assess any unintended consequence of such regulations. It can also assist in refining economic policy making, manage risks better and guide data rich oversight by Central Banks.
- (vi) Using AI can create algorithms with statistical distribution that mimic real data via deep learning model simulations and use this data to train it and test models robustness. This data provides an alternative to real data by being cost effective and alleviating privacy and confidentiality concerns. The created data cannot be attributed to any person or group and offers an opportunity to mitigate imbalances and biases in real data and provide cost-efficient training data where such data is missing. This includes a broad range of data formats such as scrapping information from the internet and online platforms (such as social media). The created data aims at generating new content and better capture the complexities of the real-world events. This makes AI a valuable tool for financial institutions and by extension for Central Banks to use for fraud detection and credit assessment (Ward-Foxton, 2019).

- (vii) By deploying AI, allows them to closely monitor economic agents, redefine their roles, transform and be strategic partners through data driven insights. It allows personalized client experiences, streamlining complex processes, delivering innovative solutions, and enhancing faster and credible decision making.

## Challenges and/or Risks of AI

Even with all the potential benefits outlined so far, AI technology comes with several challenges and/or risks. This section provides an overview of some of the key challenges and/or risks that come with AI technology. The list is not exhaustive, given the evolving nature of this technology, which could bring new and unfamiliar challenges and/or risks in this process. COMESA member Central Banks are especially vulnerable to these challenges and/or risks given the slow pace of adopting AI in the region.

- (i) There are concerns that AI can create nonsensical and untrue facts and does not know the meaning behind its output, with knowledge limited to latest training data (e.g. in ChatGPT). It can also fabricate stories, doctor images, or come up with synthetic videos that can be so convincing that they create a false sense of reality, with potential to spread misinformation, incite panic and even destabilize economic and financial systems with unprecedented efficiency and intensity. Such output could bring into question the credibility of Central Banks' action. In politics, elections legitimacy is at a crossroad. The application of AI is being used to influence outcomes by use of fake audio through what is being referred to as deepfake. A deepfake is a fake image or event generated by AI through deep learning, where AI creates a voice that sounds exactly like the political figure contesting for a certain post. Deepfake has been used for disinformation and misinformation and is posing a serious risk to elections and democracy. Deepfake can easily fabricate political outcomes and sway opinion with manufactured reality. Similarly, social media bots automated using AI can be used to imitate human behavior, amplify partisan messages and dissenting voices, and on the extreme, be used to weaponize personal data and deliver customized propaganda to misinform and disadvantage political competitors, at the detriment of the social good. However, given the pace of innovation taking place with AI, it is just a matter of time before better solutions are discovered that will overcome such challenges. For instance, World's largest tech companies including Amazon, Google, Microsoft, X and Meta signed an agreement in February 2024 to fight deceptive AI in elections by agreeing to deploy technology to detect and counter



such materials. They have pledged to ensure AI's transparency in elections, share best practices and educate the public about how to spot manipulated content. This is in response to the need for free and fair election, especially in 2024 when according to the United Nations (UN), more voters than ever in history will head to the polls with election in at least 64 countries representing a combined population of about 49 percent of the people in the world.

(ii) The implication of AI on jobs and employment is still not very clear. In some cases, the concerns about job losses are real. AI could lead to job displacement, born from the potential automation of tasks previously performed by humans, leading to job losses. OECD estimates that 27 percent of jobs in advanced countries that are highly skilled will be replaced by AI through automation. If highly skilled jobs are automated, it may lead to increased income inequality, as benefits of AI may not be evenly distributed. It may also lead to a widening of the digital divide between countries that can afford to implement and deploy AI and those that cannot (OECD, 2023). However, AI may increasingly substitute for elite expertise, making it less scarce and allowing the insights from elite expert knowledge more accessible to a broader range of workers and the general population. In addition, AI could help level the playing field for workers on the lower end of the scale, reducing income inequality. However, contrary to the fears about job losses, several sectors are witnessing increased AI-related employment opportunities e.g. Jobs for AI products managers and machine learning experts, among others. IMF estimate that about 40 percent of jobs around the world could be affected by the rise of AI, a trend that will worsen income inequality due to a shift in the division of labor between humans and machines. IMF claims that AI will both help and hurt the human workforce but with appropriate policies to address inequality, will certainly lead to prosperity for all nations. In this regard, AI progressive adoption could greatly enhance economic welfare and financial stability (IMF, 2024).

(iii) The application of AI depends on the quality of data. Even though AI allows processing of voluminous data to discern patterns and trends to do analysis, the results critically depend on the quality of data feed on it, if poor quality data is provided, AI gives poor analysis and outcome, propagating biases, and errors, as the saying goes "garbage in garbage out." AI should not be seen as perfect in forecasting, since it cannot see into the future any more than a human can, with

outcomes largely shaped by unforeseen events like financial crisis or pandemics. AI applications remain as good as the initial data and software that is used to create them by human computer programmers. Data concerns also include data leakages directly or by inference, for instance, the capacity to unmask anonymized data through inferences or the ability to remember information about individuals after data is used and discarded. In addition, Central Banks' AI automation raises the possibility that sensitive financial data and client information could leak and that is why current AI systems often explicitly state that they cannot ensure the security and confidentiality of the information and data provided by users. The challenge of data quality is especially serious in COMESA since the region faces persistent and grave data gaps.

- (iv) AI can also just give wrong outcomes and produce incorrect information even with proper data, a phenomenon referred to as AI "hallucination". AI is prone to biases, and inaccuracies, it can produce wrong information or completely fabricated facts. Without strong oversight, it is hard to spot these flaws and hallucinations. AI systems can also be at risk of data leakage or in what is being referred to as "model inversion attacks". In this case, hackers ask the AI a series of specific random questions, in the hope that it reveals its underlying coding and data (Angwin, et al., 2016). For Central Banks, wrong outcomes can be disastrous to the financial system and the economy due to loss of trust and credibility.
- (v) AI can also amplify existing biases. Sometimes computer systems systematically and unfairly discriminate against certain individuals or groups in favor of others. This bias is more likely when the data used to train the AI system are incomplete or unrepresentative or underpinned by societal prejudices. AI can also create data that mimics real data. The key challenge with such data is the potential for replication of inherent real-world biases and gaps, compromising data quality. Other times, AI can tell stories that resonate with individuals' preexisting beliefs and viewpoints, potentially reinforcing them. In this case, the AI design is influenced by human biases in the process of coming up with its algorithms, where AI applications may reflect all the errors and poor judgements of its developers, it lacks the benefit of intuitive experience and lacks rapid reaction when unprecedented and unforeseen events happen such as financial crash or pandemics. For instance, as the use of AI applications spreads, search engine optimization (SEO) tools used for marketing like google are being directed to

influence training of the AI models, possibly skewing the models output and introducing new layers of biases that are difficult to detect. AI could therefore be used to offer a quick and low-cost way by financial institutions to profile their customers, including in risk management or screen transactions that are suspicious. For Central Banks, potential overreliance on AI generated profiles with weak safeguards could lead to inaccurate or discriminatory assessments, where such bias can lead to, among others, unethical practices, financial exclusion, and public mistrust on Central Bank policy.

- (vi) AI algorithms entails complex architecture of numerous parameters and complex models whose input signals and output are not clearly understood or even known. Also, the breath and diversity of data used by AI makes it difficult to link output to the data. AI seems not to reveal its internal workings and instead operates like a “black box”, making usage and interpretation rather difficult, which can be unacceptable to Central Banks. This emanates from the complex AI systems that are at times difficult to understand, even for AI researchers. The challenge with lack of transparency is that it diminishes the credibility of the final output since there is no ownership. A Central Bank must be able to clearly explain its decisions and actions, internally and to the public. But the opaqueness of AI makes it extremely difficult for Central Banks to communicate effectively to the public because of the ingestion of massive data and the complexity of the algorithms and the architecture of AI.
- (vii) The use of more granular dataset in AI technologies increases the probability of confidential information popping-up, which introduces an element of security breaches. In addition, voluminous data does not necessarily mean lots of fresh information. Events like extremely high inflation, financial instability, liquidity traps or bank failures are quite rare and information about them is scarce, no matter how much data there is, and AI may not be of any help in such cases.
- (viii) Many Central Banks lack technical experts to develop and implement AI technologies, including analysts, researchers, and engineers etc. especially in several COMESA member countries.
- (ix) AI applications require prolonged periods for extensive testing and validation before the technologies can be fully deployed. This challenge is also associated

with the concern of huge demand on time and finance to ensure deployment of the required data infrastructure, software development and their integration with AI systems. Most AI models are computationally expensive and require a lot of data, which may not be currently available in several Central Banks in the COMESA region.

(x) AI Algorithms that perform well in laboratory/controlled settings may not perform well in reality. For instance, people might change their behavior to qualify for benefits (e.g. in a cash transfer system, individuals learn and adjust their smart phones behavior to qualify) hence undermining the AI system ability to direct cash to the poor. For Central Banks, there is little room for experimentation since the control room is the economy and outcomes can seriously taint their credibility.

(xi) People may mistrust AI outcomes. People may feel that what the Central Bank is doing is machine generated without a human touch. To them, monetary policy making entails expert judgement and cannot be relegated to AI, raising concerns as to why Central Banks should delegate policy making responsibilities to AI. Public mistrust of AI can lead to failure of Central Bank policy especially if AI outcomes have biases and errors.

(xii) There are also concerns around the ethics of AI, especially amplified by the lack of transparency and accountability, and biased outcomes. For instance, AI is being used to predict outcomes such as where crime is likely to occur in a city and the likely culprit. This capacity to determine what is right or wrong or who is good or bad, say in a city is in itself a big risk since AI cannot really discern such questions, and if used to, can have disastrous consequences. While it is time saving for the police, given AI's extraordinary ability to analyze large volumes of data, the price is enormous in terms of social justice due to among others, AI's likely bias when exposed to certain segments (e.g. it can have a racial bias if the population in a city is stratified in income and racial lines). Such concerns are fueling restrictive regulations on how Central Banks use AI algorithms.

(xiii) AI is also faced with vulnerability to cybersecurity risks. AI deployments may introduce new cybersecurity vulnerabilities where fraudsters target and manipulate data inputs, distort outputs, and undermine AI tools. The full extent

of AI vulnerabilities to cyber-attacks is yet to be comprehensively understood but Central Banks are concerned that:

- (a) AI technology could be exploited to generate phishing messages and emails.
  - (b) AI presents an opportunity for fraudsters to impersonate individuals and organizations.
  - (c) AI technology leads to a proliferation of deepfakes resulting in more unrealistic videos, audios or images that could inflict serious damage through misinformation to individuals and organizations.
  - (d) Data input attacks that could undermine AI training accuracy or hide malicious actions.
  - (e) Manipulate the AI data environment for malicious purposes.
  - (f) Subject to jailbreak attacks, sets of carefully designed prompts bypass AI rules and filters or even insert malicious data or instructions, which could corrupt AI operations or siphon-out sensitive data.
- (xiv) AI technology could bring new sources and transmission channels of systemic risks including, among others, the following:
- (a) Use of AI could lead to greater homogeneity in risk assessment following application of similar automated AI risk assessment tools which could lead to a buildup of systemic risks. This could easily be amplified and spread to the entire financial system.
  - (b) The ease and cost-effectiveness of using AI risk assessment could lead to increased temptation for over reliance on it by Central Banks, which could in turn result in build-up of systemic risk in the financial system and could increase contagion risk.
  - (c) For cases of AI – misinformation (hallucination), such information could rapidly spread throughout the entire financial system, easily leading to systemic risks.
  - (d) Given the potential of AI to generate false or malicious content, such content could create public panic and if in the banking sector, could lead to bank runs and financial system instability.
- (xv) Extra costs including environmental costs since AI technology is energy intensive

and can contribute significantly to carbon emissions to power its use especially now that Central Banks are under pressure to support climate friendly policies. The infrastructure required to support AI can also consume critical raw materials whose opportunity cost may be a heavy burden to the financial sector and the economy at large.

### Policy Implications for Central Banking in the COMESA Region

Central Banks will have to go through fundamental shift as AI begins to manifest its impact. While AI is yet to take a firm hold in COMESA Central Banks, it is quickly being embraced in several advanced countries Central Banks e.g. Bank of England and Bank of Canada, among others. The key policy implications, when deploying AI, include among others, that COMESA member Central Banks need to:

- (i) Ensure the accuracy and safety of AI. This technology may become unreliable especially when subjected to evolving data trends or when behavioral correlations significantly shift. AI ability to generate content based on training data faces the risk that output generated could be wrong but plausible, possibly because of information misalignment or divergence between reference and source data especially in large data sets and depending on how the model is developed and trained. Inaccurate bias (also referred to as AI hallucination) is being minimized by providing more focused, better quality and more transparent training data to AI models. Inaccuracy bias has negative implications for risk-taking and management since it could lead to inappropriate advice and policy uncertainty, exposing the financial system to significant risks and eroding public trust in AI systems and Central Banks using them.
- (ii) Continue investing in data collection, sharing and governance to ensure quality of data, to realize the full benefits of AI.
- (iii) Invest in capacity development or attract the requisites human capital to develop and implement AI. The scarcity of skilled manpower is especially desperate due to the tight competition between public and private institutions, as they all attempt to attract the best in the field. For Central Banks, it is particularly important to understand and if possible, to dedicate a team to be part of the developers of the AI algorithms. AI skills development ensures that the evolving AI deployment better reflects local values and priorities. Central Banks should

ensure that AI systems benefit the public and especially the poor, respects local human values and do not cause harm. AI will also require many professionals to guide its implementation.

- (iv) Invest in reliable, secure, and resilient AI systems to improve Central Banking operational efficiency, serve their institutional customers better and to deal with cybersecurity vulnerability. Investing in AI will ensure that Central Banks are not left behind in AI technological advancements and that they will be conforming with the modern reality of the digital world.
- (v) Invest in AI technology that considers the broader societal effects and ethical consideration. AI should inspire and build confidence of the people in the technology. For instance, AI can generate photographs that are entirely false and robocalls that mimic voices. This affects how much people trust information coming from affected parties, including Central Banks. Hence, people even in remote areas must be informed about the possibilities of being misled and ensure that their concerns are represented in the development of Central Bank regulations of AI. Central Banks need to come up with a financial sector-wide AI regulatory framework that adheres to enhanced privacy standards. For instance, ensuring that all AI generated content such as videos bears clear watermark labeled AI generated, to control/regulate deepfakes. Robust regulations for AI innovations will ensure safeguards against bias or misleading information, violations of data protection laws and any risk to the financial system such as fraud and money laundering practices.
- (vi) Overcome the challenge of opaqueness of AI applications, by investing in more transparent techniques that show workings and explain the reasoning behind the algorithms to improve on credibility of the applications. Central Banks, governments, international organizations, and key stakeholders should prioritize transparent and controlled AI innovations, ensure oversight and new regulatory frameworks and a commitment to adherence to ethical AI standards that respect human values. Central Banks should also ensure human judgement is incorporated in AI based transaction monitoring models since use of such models does not excuse a Central Bank from its legal and regulatory obligation. This may entail requiring Central Banks in the region prioritizing the need for transparent, interpretable AI technologies that complement and amplify human

judgement and putting up data infrastructures for implementation of AI. There is a need to strike a balance between what to automate with AI and what to leave to human expert judgement, where the former should assist improve and not replace expert analysis. AI's role remains recommendations, advice, or analysis while human beings make decisions and assume the responsibility for such decisions. AI and human expert judgement should complement each other rather than be seen as replacing one another. Central Banks should use AI to complete repetitive tasks, that require low levels of judgement, leaving humans to commit to tasks that require critical thinking.

- (vii) Understand the reasons for their actions and where actions are based on AI output, Central Banks should be able to understand the AI training process and its limitations.

## Conclusion

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Central Banks around the world including in the COMESA region remain cautious and are taking time to deploy AI. Several Central Banks are carrying out gradual testing and validation of AI technology before they can allow these technologies to have a major influence on policy making. Improvements in algorithms and data quality will determine how fast AI transitions from being a complementary tool to being a major influence on Central Bank decision making. The AI technology revolution is here with us, and Central Banks need to embrace it. AI could drive significant efficiency, improve customer experiences, and strengthen risk management and compliance in the financial sector.

Central Banks need to strengthen their capacity, intensify their monitoring and surveillance of the evolution of AI technology and its application to the financial system. To ensure that AI does the right thing, Central Banks must be prepared to deal with its implications. Central Banks need to learn and adapt to the AI technologies, by among others, understanding how these technologies work, to maximize and leverage on the benefits. The failure of some Central Banks to do this may result in being left behind while others leverage and take advantage of AI. While many tasks may be automated by AI, not all tasks will be replaced. Central Banks that engage with and leverage AI technologies will have a competitive edge going into the future. Investment in skills, data systems and responsible AI practices and infrastructures will in the meantime remain crucial.



AI use should not be left alone but needs close human supervision commensurate with risks and challenges that its application entails. Ethical considerations, such as data privacy, fairness and robustness against adversarial risks, and the need for transparency and explainability of AI solutions will be critical in building trust and ensuring ethical adoption and/or deployment of “responsible AI”. Central Banks should ensure that AI deployment respects ethical values since professionals using AI may cause harm if ethical considerations are not integrated with AI adoption and deployment. Many of the roles may shift towards leveraging and interpreting AI driven analysis but ultimately, human empathy, compassion and critical thought process will be vital.

### **AI will not replace humans but will enhance analytical capabilities and automate processes and tasks**

AI should be seen as complementing human brains and not outcompeting it. AI should be confined to analysis or recommendations, while capacity to make and execute decisions should remain a preserve of humans, at least in the meantime, until application of AI is better understood. AI will not replace humans but will enhance analytical capabilities and automate processes and tasks. Human unique understanding, emotional intelligence and ethical consideration will remain invaluable. Responsible AI should be seen as a complementary tool, augmenting the capabilities of humans. Responsible AI, if properly implemented, will reduce unintentional bias, increase transparency, protect data privacy, promote fairness, and create welfare benefits for those affected by Central Bank policy decisions (Dignum, 2019). Embracing responsible AI will unlock new frontiers, empower Central Banks and financial institutions. The fusion of human expertise with responsible AI capabilities will be the key to shaping a sustainable and prosperous future for all. However, as AI implementation and adoption progress, new Central Bank regulations will be necessary to ensure safety, prevent misuse and protect jobs when and where necessary.

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