AI ADVANCEMENTS, RISKS AND REGULATION: IMPLICATIONS FOR BUSINESS AND CORPORATE ORGANIZATIONS

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ABSTRACT

That AI is going to affect businesses and how they are conducted, is now clear and unambiguous; however, the extent to which this technology will impact business remains to be seen. Considering a wide variety of AI applications, the implication is that several benefits arise from the use of such technology. Improved health care, safer cars and other transport systems, improved machine maintenance, as well as increased production output and quality, are some of the benefits and opportunities AI offers. Nevertheless, risks of incorporating AI that businesses need to be aware of include job losses, privacy, security and reputational threats; hence, the need for regulation of the way AI is transforming businesses. Excessive reliance on AI and the need to protect smaller businesses, which cannot afford AI, from being disadvantaged competitively are some factors that make regulation imperative for the AI technology. This paper presents a literature review of the opportunities, risks and regulation imperatives for AI in Big Tech companies including AI ethics in Africa and consequences of China's advancement in facial recognition technology. The implications are that while the AI technology should be embraced and advanced, the ethics and risks associated with the technology should be reflected on and incorporated in the development of the technology, particularly in Africa.

Keywords: Artificial Intelligence, business, competitiveness, generative AI, privacy, security, risk management, regulation.

1. INTRODUCTION

Artificial Intelligence (AI) is now expanding into both the media and business applications, including business tools and online search platforms such as Bing and Google. Corporate enterprises cannot afford to ignore this development, since it is expected to shift the way business is conducted.

AI has been around for some time (Delipetrev et al., 2020); however, the race to keep ahead of this technological advancement became evident in 2023, particularly among big technological corporations such as Microsoft and Google. On the one hand, the challenge to be first movers in this field has accelerated the propaganda for the use of AI. On the other hand, critics have been calling for caution and regulation,

considering the possible threats to humanity and other potential risks of AI, such as, for example, job losses.

This paper presents a literature review, highlighting business opportunities that AI offers to corporates, while exposing the potential dangers of its adoption and the need for urgent regulation to mitigate these threats. The paper adds to the existing literature on the debate regarding the emergent applications and development of AI, risks of impetuous embracement of the AI technology, and the urgency of regulating the AI development for business, as well as its wider applications in government and society.

2. DEFINING ARTIFICIAL INTELLIGENCE

General definitions of AI systems

The Organization for European Cooperation and Development defines an AI system as "*a machine-based system that is capable of influencing the environment by producing an output (predictions, recommendations, or decisions) for a given set of objectives. It uses machine and/or human-based data and inputs to (i) perceive real and/or virtual environments; (ii) abstract these perceptions into models through analysis in an automated manner (e.g., with machine learning), or manually; and (iii) use model inference to formulate options for outcomes. AI systems are designed to operate with varying levels of autonomy*" (OECD, 2019).

As a general term, AI has been defined in different ways, depending on its applications. One broad definition of AI refers to the development of computer systems that can perform tasks normally requiring human intelligence, such as recognizing speech, understanding natural language and making decisions (Uddin, 2023). In this regard, there are three AI application areas of interest to business, namely Machine Learning, Deep Learning and Computer Vision, briefly described below.

On the one hand, Machine Learning (ML) techniques have been developed to analyse high-throughput data, aiming to obtain useful insights, categorise, predict and make evidence-based decisions in original ways, to promote the growth of novel applications and fuel the sustainable booming of AI (Xu et al., 2021).

Deep Learning, on the other hand, is a subset of ML and one of the ML methods that influences applications in various fields such as education, health and automotive industries (Deng & Dong, 2014).

Computer Vision (CV) aims to enable computers to understand and interpret visual information from the world around us. This can be used to develop systems able to identify objects and people in images, track moving objects, and even understand the context of an image. While AI provides computers with the ability to think, CV then enables them to see, observe and understand (Matsuzaka & Yashiro, 2023).

Since there is no generally accepted definition of 'intelligence', AI has been characterised informally from its inception. For instance, Akman (1983) stated the primary goal of AI would be to make machines smarter. The other AI goals are aimed at understanding what intelligence is, as well as to make machines more

useful for entrepreneurial purposes. Additionally, Kurzweil (1990), confirms AI as the art of creating machines that execute functions requiring intelligence when performed by people.

More recently, the European Commission (EC, 2021) asserted an AI system as software developed with one or more of the techniques and approaches that can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions that influence the environments they interact with.

From its beginning, AI has been having high aspirations focusing on ultimate goals around intelligent and smart behaviour, rather than on simple questions, such as classification or regression problems discussed in statistics or ML. Additionally, this implies AI is not explicitly data-focused but assumes the availability of data that would allow studying this kind of questions. Therefore, this differs from data science, which places data at the centre of the investigation and develops estimation techniques for extracting the optimum information contained in data sets and, at times, applying more than one method (Emmert-Streib & Dehmer, 2019).

Wang (2006) postulates that there is no generally accepted, formal definition of intelligence, nor is there one succinct informal definition of AI that would go beyond its obvious meaning. Alternatively, we have a plethora of different characterizations and opinions regarding what AI should be.

## Defining General Purpose AI systems in the EU context

General Purpose AI Systems (GPAIS) are distinguished from specialised AI systems according to their adaptability at completing recognizable tasks, and a lack of a fixed purpose. Distinguishing what constitutes a distinct task is, therefore, critical to identifying the key attributes of this technology and strengthening a system's case for "generality" (Uuk et al., 2023). The term GPAIS is now a central idea for describing systems without a fixed purpose (Gutierrez et al., 2022). Furthermore, in terms of technology, GPAIS are important, because they include an increasingly powerful set of widely deployed systems, such as ChatGPT, Bard and Bing Chat.

These definitions imply that GPAIS are different from narrow AI systems in their being versatile at completing distinct tasks and not having a fixed purpose. Another approach to defining the GPAIS, is measuring the AI system adaptability, or how well it can learn new tasks (Schilling et al., 2017). GPAIS can also be defined by the degree to which AI systems develop the ability to execute individual tasks (Uuk et al., 2023).

The next section will expand on business opportunities for AI adaption, with technological trends now focusing on AI business applications.

3. BUSINESS OPPORTUNITIES FOR AI ADAPION

AI has already set the pace for future technological trends in the United Kingdom and is, therefore, not a new phenomenon. The Department for Science, Innovation and
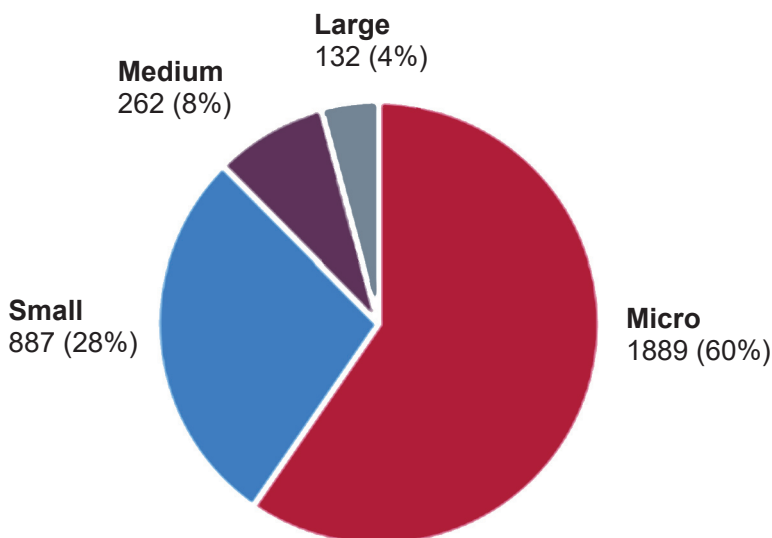
Figure 1. Size profile of UK-based AI companies, 2022. (Source: Department for Science, Innovation and Technology and Office for Artificial Intelligence, 2023)

Technology and Office for Artificial Intelligence (2023) reports that the AI sector, at present, provides a significant contribution to the UK economy (Fig. 1).

Technologies such as CV and AI are the fastest growing areas, in terms of their market size and industry adoption. Spatial CV and edge AI, in particular, are not only used for complex processes but also to improve and automate repetitive tasks (Huang et al., 2020). It is, thus, critical to identify the forces shaping this technological development and offer avenues for growth opportunities that businesses should consider for investment.

Increase in investment for AI in United States

Recently, the focus on AI has shifted from the manner systems learn data, to the ways the learning can be put to use. In a shift away from moving a chess piece or sorting spam messages from priority email, the focus has been to provide new content, in the form of music, art, videos and text (Garon, 2023). Moreover, the growth of generative AI (GAI) has been exponential, at least as measured by the growth of US venture capital (Lebow, 2023; US Chamber of Commerce Technology Engagement Centre, 2023). Additionally, the funding of GAI in the US has been increasing by 27 % annually, approaching the $1.4 billion mark in 2022; a surge from a mere $200 million in 2020 (Lebow, 2023). Consequently, it is perceived that GAI has provided a fundamental breakthrough because, rather than simply recognise and classify a photo of a cat, a ML system is now able to create an image or text description of a cat on demand.

Opportunities of Generative AI

The recent global-wide adoption of ChatGPT has demonstrated a tremendous range of its use in the technology, including software development and testing, creating poetry, essays and business letters and contracts (Metz, 2022; Reed, 2022; Tung, 2023). However, this has raised a number of concerns related to the difficulty in differentiating human versus AI authorship within academic and education communities, while re-igniting debate on the role of traditional human endeavours (Stokel-Walker, 2022; Else, 2023). It is, nevertheless, proposed that GAI needs to be embraced with caution, where regulation is imperative to benefit the most from the technology, while protecting society, business and governments from the potential damage, which uncontrolled AI may bring to humanity.

AI benefits identified by European Parliament

Given of the wide variety of the AI-based applications, there are a number of benefits arising from the use of this technology (European Parliament, 2020).

Societal benefits

AI can assist with improved healthcare, safer automotive and other transport systems, as well as with tailored, cheaper and longer-lasting products and services. It can also facilitate access to information, education and training. Furthermore, AI can make the workplace safer, as robots can be used for dangerous parts of jobs, and open new job positions as AI-driven industries grow and change.

Business and public service applications

Where business is concerned, AI can enable the development of a new generation of products and services, while it can also boost sales, improve machine maintenance, increase production output, quality and sustainability, as well as improve customer service and save energy. For public services, AI can reduce operational costs and offer new possibilities in public transport, education, energy saving and waste management.

Democracy and criminal justice

Democracy could be strengthened using data-based scrutiny, preventing disinformation and cyber-attacks and ensuring access to quality information. Additionally, AI is predicted to be increasingly used in crime prevention and the criminal justice system, as massive datasets could be processed faster, prisoner flight risks assessed more accurately, with crime or even terrorist attacks predicted and prevented. Moreover, in military matters, AI can be used for defence and attack strategies in hacking and phishing or to target key systems in cyberwarfare (European Parliament, 2020).

Turning text to video

Billions of the 'alt-text/image' pairs from the Internet pages has fuelled the recent development in the Text-to-Image modelling (Schuhmann et al., 2022). AI is, therefore, evolving in the area of turning texts to videos, with implications for business in the tailored online adverts, video tutorials and presentations (Pasternak,

2023). It is projected that marketing will transform to personalized email generation, with customer follow-up regarding products and services, including real-time coaching and providing feedback to human sales agents on calls, including summarized sales discussions and insinuated next steps (Toews, 2022).

AI for Sustainable Development Goals

AI systems can have global impacts that transcend multiple domains, and in light of their prevalence and pervasiveness in our sociotechnical infrastructures, it is important to consider how AI can be designed to support higher-order values such as the Sustainable Development Goals (SDGs) and not only the values often implicated by AI; for instance, explicability, privacy and human autonomy.

Nevertheless, the economic impact of AI systems can be potentially atrocious, bearing in mind they are not accessible to organizations that cannot afford the expensive algorithms. This can easily lead to an excessively unfair marketplace, and it is proposed that equitable regulations in institutions, which limit the times and quantities of trades aimed at promoting a fairer marketspace for smaller organizations, must be in place (Capasso & Umbrello, 2023).

It has been suggested that establishing multi-stakeholder partnerships, which include public, private and civil society actors, can be crucial for AI start-ups. Such partnerships, grounded in the co-presence of non-market and market values, can foster trust, collaboration and coordination among various stakeholders. This approach is particularly relevant for AI start-ups aiming to align their business models with sustainable and responsible AI development. By adopting practices that promote a social license, start-ups can navigate the ethical and societal implications of AI more effectively, ensuring their innovations contribute positively to society (Capasso & Umbrello, 2023).

The *AI for Good* Foundation (https://ai4good.org) is an excellent example of a non-profit entity coming together in collaboration with academic, institutional and governmental bodies to promote AI, not only as the subject of being designed for the social good but also as a tool that can be used to support the social good in the form of SDGs.

Similarly, there is a growing body of research on how these Artificial Intelligence for Sustainability Goals and norms can be used to support higher-order values, such as the United Nations SDGs (UN, 2023). Specifically, this impacts the UN SDG number 17 on global partnership. This goal may encourage Big Tech corporations to strengthen multi-stakeholder partnerships that promote effective public–private and civil society partnerships and the meaningful co-presence of non-market and market values (Floridi et al., 2020).

China and facial recognition technology

AI is increasing in popularity and, as everywhere else, is already changing the world, with Africa lagging but not completely excluded. There are start-ups, there is research, and there is innovation. Africa is also a place where the future is made. One country that has understood this is China, which has been pouring loans

and investments into Africa for years, benefiting manufacturing, agroindustry, telecommunication and infrastructures. When the West will realize Africa is also a market and a trade partner, other players will already have benefited—as Africans already do, for example, via local businesses and employment (Abejide & Okonkwo, 2023).

In 2018, the government of Zimbabwe employed a surveillance network developed by CloudWalk to provide a mass facial recognition program. In exchange for the technology, Zimbabwe sends images of its citizens, which provides China with an edge in AI technologies compared to other Western countries (Zeiger, 2020). Beyond the human rights concerns, the deal pointed to another angle of the China–Africa tech story: the quest for technological advantage.

Existing AI facial recognition technologies are principally trained on white and East Asian datasets. The Zimbabwe deal offered CloudWalk valuable data for improving its recognition of other ethnicities—thereby strengthening the arsenal of surveillance tools available to authoritarian governments (Bayes, 2019).

In the African context, AI should, therefore, not just concern money and business, but also deal with justice and solidarity, gender equity, cultural inclusiveness, as well as human rights, good government and community engagement. Ensuring this, is, in the first place, a task and responsibility of African citizens and their leaders in civil society, business and politics. However, non-Africans (and those with a foot in both worlds) can help in this regard, as equal partners. Not only business and trade partners must be involved, but also conversation partners in academia and elsewhere: fellow humans looking for the good life and a good society in local and global contexts, given new technological possibilities and challenges (Coeckelbergh, 2020).

4. RISKS ASSOCIATED WITH AI

Benefits for the workplace from AI were found to potentially span industries, providing workers with time for new tasks and firms with greater speed and accuracy by way of automation (Cockburn et al., 2019). However, sceptics lament the challenges that prevail in seeking to benefit from the AI impact, specifically for policies related to data collection and control, communication in society, and safeguarding democratic principles (EC, 2021; White House, 2021). Moreover, imminent risk prevails for workers being displaced by AI, because of unbridled automation, with no guarantee the development of AI tools will achieve the desirable societal optimal mix of automation and augmentation of tasks (Acemoglu, 2021). These issues are discussed in this section.

Privacy, security and reputational risks

Notwithstanding the advances realized in AI to date, scepticism prevails, with many corporates unwilling to embrace the AI technology. The fears promulgating such reluctance stem from issues related to privacy and security, as well as reputational risks. A recent survey of corporate leaders from BlackBerry, found the majority corporates believe ChatGPT and GAI technologies pose risks for privacy and the

company's distinction (Grothaus, 2023). In terms of the survey, 67 % respondents indicated privacy and security as reasons for bans on ChatGPT and GAI. It was further reported, since GAI required data in order to produce results, companies were concerned employees might upload sensitive company data to the chatbot or other similar bots, thereby placing proprietary company information at risk.

Health sector AI bias risks

Challenges in the risks associated with AI continue to be identified in both academia and professions. For example, Obermeyer et al. (2019) examined the use of algorithms in identifying "high-risk" patients, in order for these patients to receive additional resources and attention from care providers. Findings from the study revealed the utilized algorithm assigned poor patients to a lower risk score than an equally ill, richer patient. Consequently, the adoption of this proxy instituted bias into the algorithm, resulting in poor patients losing access to additional assistance and care they would, otherwise, have received. Therefore, AI adoption requires a cautious approach, adding weight to the cause for regulation.

Trade secrets and non-public information

Much attention has been directed to issues relating to GAI, the copyright aspects of databases and their uses. However, less attention and publicity have been shared on business concerns regarding the AI impact on trade secret protection for enterprises. The adoption of GAI has reverberations for the discovery of existing trade secrets, as well as the maintenance of trade secrets that exist in enterprises. Therefore, those users of company information (employees, vendors and other stakeholders) should not utilize GAI tools for sensitive data. This may apply to cases, such as when a company considers a merger or acquisition, and is prohibited from disclosing such information under the Securities Exchange Act. In these situations, there are prohibitive conditions for specified disclosures in advance of any acquisition (Garon, 2023). GAI is certainly putting these closely guarded secrets at risk; hence, its adoption should be carefully monitored (Yeh & Crawford, 2017).

Ethics and AI

It is important for AI ethics in Africa to engage with cultural diversity and explore what AI and robot ethics mean in those specific cultural contexts. In Kenya, for example, Kwanya (2021) espouses the concept of work in the Kenyan environment, and also in the rest of sub-Saharan Africa, and shows that people value social connections and togetherness possibly more than wealth. Furthermore, Dignum (2019) suggests AI ethics can benefit from the Ubuntu philosophy. It may also be helpful to research how the technology innovation and use of digital technologies actually work in the African context, including cases where that might already be evident. Consequently, in the African framework, ethics should not only concern what could go wrong, but also what already goes right and why, and how we can shape a good, common future.

The benefits and risks of AI are as great as the risks, and its development may infringe on a number of fundamental rights and freedoms. Ethical narratives, perceptions and principles from the Global South, particularly Africa, are glaringly missing from the world-wide discussion of AI ethics. There is a general belief that socio-cultural and political contexts shape expectations of AI and the challenges and risks it poses. It is, therefore, as Hagerty and Rubinov (2019) suggested, safe to assume that AI ethical concepts such as 'bias', 'human rights', 'privacy', and 'justice', along with 'solidarity', 'trust', 'transparency', as well as 'openness' and 'fairness', mean different things to different people.

Similar to western countries, there are risks related to bias and discrimination, responsibility, the future of work and climate change in Africa (Coeckelbergh, 2020). However, AI is becoming more popular and is already changing the world, including in Africa.

AI ethics in Africa

There are also substantial sociocultural and organizational challenges that undermine the adoption and implementation of AI across the continent. This includes the lack of digital infrastructure, education, inadequate data, public policies, and funding (Kiemde & Kora, 2022). Thus, for Africa to begin to capitalize on the opportunities presented by AI, there needs to be cooperation between African stakeholders, as well as the establishment of an enabling environment for AI to thrive.

African states seem to face a serious moral dilemma with regard to their AI approach and AI governance approach: Do they go all out and become a global role player with the eye on economic gains that AI offers? Or do they take time to stop and think about the social and ethical impact on vulnerable groups in their communities? (Ruttkamp-Bloem, 2021).

Crawford (2017) postulates representational harm from AI systems is a cultural and social harm, which occurs when systems reinforce the subordination of some groups along the lines of identity; such as race, class and gender. Furthermore, the primarily economic and transactional damage of allocation harm, occurs when a system allocates or withholds certain groups an opportunity or resource, then the scope of the damage to Africa and its people, brought about by their exclusion from global AI conversations, becomes amplified. Consequently, excluding Africa from global discussions, specifically in AI, when the potential of data-driven AI for increasing structural bias, unfairness and exclusion is considered, does far more harm than simply to establish AI technology remains in the hands of the North (Abejide & Okonkwo, 2023).

5. NECESSITY OF REGULATION INTERVENTION

There have been arguments from proponents and critics of AI highlighted in the media and more pronounced calls for AI growth to be paused, before regulatory instruments are in place. In this regard, and considering the inherent risks in

broad AI applications in society, business and government, and the momentum AI development saw in 2023, demands for reflection have been more noticeable regarding the future of AI without regulation. An open letter calling for a six-month "pause" in work on AI has further divided the technology industry, not only between AI advocates and critics but also between different factions of AI critics (Rosenberg, 2023). This paper is, however, limited to discussion on regulation affecting economic disparities, anti-competitiveness, excessive reliance on AI in decision-making, as well as disinformation and deepfakes in business and corporate enterprises.

Economic disparities

The absence of regulation related to the AI market can also exacerbate economic disparities, with AI technologies, including ChatGPT, offering the potential to automate tasks currently performed by humans, which may lead to job displacement (Gruetzemacher et al., 2021). This can result in economic disparities, particularly in industries where chatbots are used for customer service, support, or other repetitive tasks. Without proper regulation, there may be limited mechanisms to ensure the dark side of GAI, resulting in increased calls for urgent regulation of AI, to mitigate the risks for society, business and individuals. A critical analysis of controversies and risks of AI is vital to ensure that the economic benefits of AI technologies are distributed equitably (Kopalle et al., 2021).

AI risks for anti-competitiveness

AI technology needs to be accessible to smaller firms, preventing them from being disadvantaged or left out of acquiring technology due to non-affordability. It is evident smaller businesses or enterprises may not possess the resources or expertise required to develop or deploy AI models such as ChatGPT. This would produce a competitive disadvantage for them, compared to larger organizations that can afford advanced AI technologies. Furthermore, numerous prominent business leaders, even business tycoons, including Bill Gates and Elon Musk, emphasize GAI and ChatGPT would alter our work and daily lives (Olinga, 2022; Bove, 2023). This would lead to a growing economic gap between different organizations and industries, thereby further aggravating existing inequalities.

Excessive reliance on AI in decision-making

Lacking regulation of the AI market also raises concerns regarding the impacts of AI technologies on decision-making and human autonomy (Korzynski et al., 2023). As AI models such as ChatGPT gain more capabilities in generating human-like text responses, there is a risk that humans may rely excessively on AI-generated content, without critically evaluating or verifying the information (Eke, 2023). This can impact decision-making processes in management and economics, where accurate and reliable information is crucial for making informed choices (Verma et al., 2022; Fu et al., 2023; Li & Liao, 2023).

Disinformation and deepfake content

A level of confusion is already caused in purely casual applications, with AI-integrated business analytics (AI-BA) making increasing use of AI-generated information, where the poor quality of such information may translate into bad business decisions and operational inefficiency in the long run (Rana et al., 2022). As a result, it is not uncommon to expect the spread of misinformation and false narratives (both intentional and unintentional), along with the preservation of harmful stereotypes and biases (Moravec et al., 2020; Freelon et al., 2022). With no supervision or accountability mechanisms in place, ChatGPT remains highly vulnerable to misuse and abuse.

6. CONCLUSION

Finally, it is important to emphasize the use of ChatGPT, Bard and other generative AI models in business and the corporate world, should be done with caution. There are ethical and societal implications emanating from the use of these automated mechanisms that must be considered, prior to accepting the tools for assisting with business decisions, automated processes and other applications. Additionally, there is no assurance on the correctness of information by GAI models, with their use still growing amid societal and ethical implications; for example, the impact on jobs, privacy, security, and bias, as well as disinformation. These tools can provide quick answers to the questions but should not be deemed a substitute for critical thinking and problem-solving skills in business. Another implication to be considered, is that GAI technologies lack awareness of localised rules and regulations, since they operate on a global scale. Consequently, their responses may not be aligned with national laws and regulations.

In conclusion, it is noted that governments are slow or reluctant to institute legislation that regulates Big Tech companies. As a result, contractual relations among the consumers, website hosts, publishers and Internet service providers for the online and digital economy dominate the legal framework, in which the parties engage with one another. As a consequence of the lack of governmental involvement and the pressing need for a workable, commercially reasonable, and largely inviting consumer experience, the institutions that constitute the modern Internet, effectively coordinate through contracts and voluntary associations, to establish community standards and social norms that govern highly used internet platforms. These companies have filled the void created by constitutional restrictions and statutory safe harbours and it is hoped governments will sooner, rather than later, rise to the challenge and take a leading role in regulation of Big Techs.

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