PPN | POLICY ACTION NETWORK

INTRODUCING THE SERIES:

CAN AI AND DATA SUPPORT A MORE INCLUSIVE AND EQUITABLE SOUTH AFRICA?

science & innovation
Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

HSRC
Human Sciences
Research Council

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WHY FOCUS ON AI AND DATA?

Data-driven technologies, including Artificial Intelligence (AI), are becoming more widely used in all domains of South African society. From private companies to non-profit organisations and government entities, the interest in data-driven models and systems for improving planning, decision-making and service delivery is steadily rising, motivated by both global trends in digitalisation and the competitive edge that such technologies appear to offer.

Yet, many of these AI and data-driven systems are not transparent to society, functioning in silent and invisible ways to automate decisions on a range of social issues, such as access to credit and social grants, and even entry to physical spaces. Global research on these technologies is increasingly showing how AI systems reproduce historical biases along lines of race, gender, sexuality and income. [1]

In South Africa a large proportion of the population is vulnerable to biases and potential exploitation through emerging tools. A survey of public understanding of technologies associated with the so-called 'Fourth Industrial Revolution' (4IR) showed that only 39% of South Africans have heard of AI. [2] The survey also found that a relatively high proportion of South Africans are concerned about the impact of automation on future job prospects, and the majority of the population is uncomfortable with robots performing certain tasks.
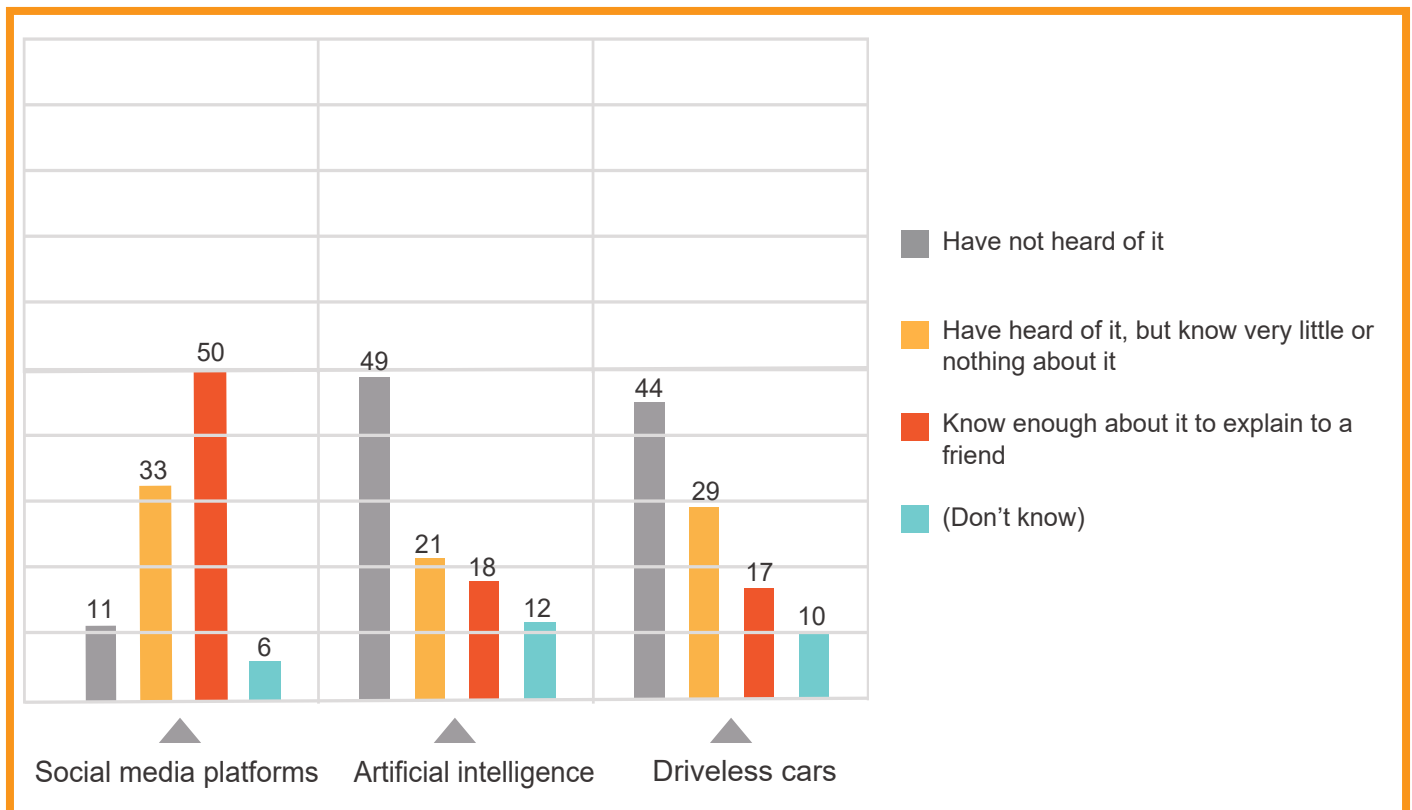

Figure 1 Familiarity with basic 4IR technological concepts [3]

For policy actors, striking a balance between the opportunities that digital and data-driven technologies can offer and the concerns they raise is a key issue to consider. So, too, is embedding the new policy objectives of the Presidential Commission on the Fourth Industrial Revolution and White Paper on Science,Technology and Innovation (STI White Paper)[4] within the country's broader commitments to social transformation, which the South African Government can address through appropriate and consultative policy measures.

[1] West, S., M., M. Whittaker and K. Crawford. 2019. *Discriminating Systems*. New York: AI Now.
[2] Roberts, B., J. Struwig, N. Bohler-Muller, S. Gordon, T. Zondi, S. Mtyingizane, and N. Mchunu. 2019. Public attitudes towards the Fourth Industrial Revolution (4IR) in South Africa. *HSRC Media Briefs*. http://www.hsrc.ac.za/en/media-briefs/democracy-goverance-and-service-delivery/public-attitudes-4ir
[3] Ibid.
[4] Department of Science and Innovation (DSI). 2019. *White Paper on Science, Technology and Innovation*. Pretoria: Republic of South Africa.

ABOUT THIS TOPICAL GUIDE

This series of PAN Topical Guides seeks to provide key research insights and policy considerations for policy-makers, and other interested stakeholders, on how these technologies need to be developed, used and safeguarded in a manner that aligns with the transformation objectives of South Africa. In addition, each Guide outlines ways in which South Africa may respond to the growth of data-driven systems and technologies, including AI, to foster and inculcate a more inclusive and equitable society, rather than deepen divides.

As the first of the series, this Topical Guide maps out cross-cutting regulatory and policy frameworks that govern data use and AI in South Africa, before providing an overview of global trends on the ethical regulation of AI, and lastly a series of broad-based policy considerations for mitigating against the risks associated with these technologies and strengthening their use in the realisation of South Africa's transformation goals.

ABOUT THE SERIES PARTNERS

The Policy Action Network (PAN) is a project in the Research Use and Impact Assessment (RIA) department of the Human Sciences Research Council (HSRC), supported by the Department of Science and Innovation (DSI). The HSRC is South Africa's statutory research agency and the largest publicly-funded research institute in the social sciences and humanities on the African continent. RIA and PAN are leading HSRC's policy support work on the social implications of AI and data in South Africa.

The University of Pretoria (UP) is one of Africa's top universities, producing socially impactful research to find solutions for the world's most pressing issues. Through UP's South African Sustainable Development Goals (SDG) Hub and Data Science for Social Impact Research Group, under the ABSA Chair of Data Science, the university is engaging with the role of emerging technologies in sustainable development in the country and on the continent.

AI AND DATA

AI is part of a broader field of algorithmic or automated decision-making (ADM) where computing devices collect and analyse data to make decisions on behalf of humans. The main reason for automating decision-making is that it can minimise human error and operate more efficiently (usually on a much larger and quicker scale) than humans.

In ADM, data is collected from a source, such as a bank receiving applications for home loans. This data is then analysed by an algorithm on a computer to make a recommendation or initiate some action. An algorithm can be quite a simple formula. For example, it could say that if the person submitting an application for a R1 million home loan is a single female with a salary of less than R20,000 per month then the loan should be declined.

Sometimes the algorithm can make mistakes or does not capture reality accurately. For example, the home loan applicant may receive additional income from a side business or remittances, and is due for a promotion at work, so would actually be a good candidate. To make a better decision, the bank would need to collect additional information about the applicant and implement a more complex algorithm

on the computer to take into account these other variables.

Instead of creating this complex algorithm, through AI, and the sub-field of machine learning (ML) in particular, an engineer will 'train' a learning algorithm (or set of algorithms) using large amounts of historical data, such as relationships between home loan payment behaviour and gender, education level, salary and job promotion prospects. The resulting mathematical model is used to make decisions, and is updated as new input data is received, thereby improving its performance on a continuous basis.

Whilst ML can be more effective and flexible, engineers are still involved in decisions about which learning algorithms or variables to use, and there are often limits on the availability of historical data. In our example, if few home loans have been approved for single females, then there is limited data on payment behaviour which can lead to a bias against granting them home loans in the future. Nonetheless, because ML can manage complex classifications and predictions it is seen as a key enabler of increasingly advanced AI applications such as self-driving cars and human-like robots.

POLICY CONSIDERATIONS FOR AI & DATA IN SOUTH AFRICA

DATA (AB)USE IN SOCIAL GRANTS

Between 2013 and 2019, a series of court cases involving the South African Social Security Agency (SASSA), the Department of Social Development (DSD) and the private company, Cash Paymaster Services (CPS), highlighted both the uncompromising business zeal for large sets of personal data, as well as the ways in which the unethical collection and use of such data could result in large scale discrimination against some of the most vulnerable populations in the country.

In 2012 CPS was awarded a contract by SASSA to provide social grants to approximately 17 million beneficiaries across South Africa. In 2015 and 2017 the parent company of CPS, Net1 UEPS Technologies, secured licenses[5] for a number of new subsidiaries to on-sell 'predatory' financial services to social grant recipients[6]. Whilst Net1 argued that they were offering financial services to an underserved segment of the population, many questions have been raised about how beneficiary's provided consent for their data to be used and whether this personal and confidential data can ever be retrieved from CPS[7]. Moreover, those receiving social grants became subject to automated deductions from their grants in terms of the loan agreements with NET1. One report from GroundUp describes how a mother who came to collect her child benefit grant of R350 was told that after the loan deductions she would only be receiving 26c. As the social pay point did not have coins, even her 26c was not paid out.[8]

Government use – whether directly or through appointed service providers – of personal and system data is critical for the operation of social grant administration and many other service delivery activities. However, this data is increasingly being used to support more automated forms of planning and decision-making processes, some using AI-based technologies, ultimately raising concerns about the way government agencies are 'automating poverty'[9] [10]. By automating such processes, poverty is treated as a mathematical problem to be solved, rather than a complex human phenomenon requiring engagement and empathy. Social protection, such as through social grants, constitutes a pertinent sector for policy relating to data and AI use, alongside a number of other key sectors such as healthcare, crime prevention and education.

[5] NET1 Risk Factors. http://www.net1.com/about/financial-highlights/risk-factors/

[6] Bruce, L. 2018. *Supreme Court of Appeal rules social grants must be protected*. Centre for Applied Legal Studies, University of the Witwatersrand. https://www.wits.ac.za/news/sources/cals-news/2018/supreme-court-of-appeal-rules-social-grants-must-be-protected.html

[7] Mahlaka, R. 2018. Court nudges government on illegal deductions from social grants. *The Citizen*. 2 October. https://citizen.co.za/news/south-africa/2016645/court-nudges-government-on-illegal-deductions-from-social-grants/

[8] Torkelson, E. 2017. Deductions from Social Grants: How it all works. *GroundUp*. 3 March. https://www.groundup.org.za/article/deductions-social-grants-how-it-works/

[9] Pilkington, E. 2019. Digital dystopia: how algorithms punish the poor. *The Guardian*. 14 October. https://www.theguardian.com/technology/2019/oct/14/automating-poverty-algorithms-punish-poor

[10] Eubanks, V. 2018. Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor. New York: St Martin's Press

HEALTH

South Africa's healthcare sector is engaging with a number of data and AI-based innovations. While there is significant interest in diagnosis and triage,[11] also being considered are AI and data for enhancing communication with patients,[12] providing counselling,[13] reducing medical aid fraud and planning resource allocation.[14] The policy focus in this sector has tended to be on ensuring the privacy of patient data whilst allowing for information sharing between practitioners to enable a holistic or integrated approach to treatment, or for medical research purposes. However, a number of related issues and areas require deeper discussion, including the affordability of precision medicine, bias in the roll out of targeted diagnostics, bioethics in biotech, and gene editing.

CRIME PREVENTION

As in other countries, South African military and police entities are testing AI-driven facial recognition technologies in border control and city crime prevention. Private security companies are also collecting and sharing data with networks of partners. How surveillance data is collected and shared, including with international companies, is a key concern[15]; as is racial, gender and other forms of social bias that the use of biometrics, such as facial recognition technology, can reinforce.[16]

[11] See examples of work by South Africa-based startups and corporates: http://cortexlogic.com/, https://phulukisa.co.za/, https://www.edai.africa/, http://datawizzards.io/ https://www.broadreachcorporation.com/vantage/

[12] Turn.io. https://www.turn.io/news/2019/10/23/turnio-launches-behaviour-change-chat-platform-for-social-impact

[13] rAInbow. https://www.hirainbow.org/

[14] Conway, A. 2016. Optimizing Mobile Clinic Locations using Spatial Data. 10. *MIIA Meetup at Rise Africa*. Cape town. 27 October. http://machineintelligenceafrica.org/activities/events/.

[15] Swart, H. 2019. Visual surveillance and weak cyber security, Part One: When cameras get dangerous. 13 June. *Business Maverick*. 13 June. https://www.dailymaverick.co.za/article/2019-06-13-visual-surveillance-and-weak-cyber-security-part-one-when-cameras-get-dangerous/

[16] See the following books: Benjamin, R. 2019. Race After Technology; Noble, S. 2018. Algorithms of Oppression: How Search Engines Reinforce Racism; Browne, S. 2015. Dark Matters: On the Surveillance of Blackness.

EDUCATION & TRAINING

It is often argued that digital technologies should be enabling access to high quality, customised teaching and educational content for learners across South Africa. These advances in educational technology can further utilise data and AI for supporting 'adaptive learning' implemented on local e-learning platforms[17], as well as for other administrative activities including automated essay marking. For this sector, the policy considerations span a range of issues, from the relative effectiveness of adaptive learning methods[18], to inequitable access to digital devices, language barriers, privacy of student data, the capacity of teachers to use digital technologies, and potential bias in how students are accepted to institutions.[19]

INSURANCE & FINTECH

The cross-cutting role of insurance and finance organisations means that this sector is central to policy debates around emerging technologies. As a key stakeholder and regulator of banking practices, the South African Reserve Bank is actively engaging with data and AI-related innovation opportunities around insurance and fintech[20] but also on key policy issues, such as cyber-security, around which it is seeking stronger collaboration with private organisations[21]. More broadly, compliance with global data management and privacy regulation is critical for financial entities facilitating transactions across national boundaries, whilst there are numerous consumer-related policy questions which need to be addressed such as potential bias in algorithms used for big-data-based credit scoring[22].

[17] See examples of work by South Africa-based startups and corporates: https://dapt.io/, https://www.siyavula.com/, http://www.virtuallearningafrica.com/, https://www.mytopdog.co.za/

[18] Findlay, S. 2017. Adaptive learning apps help close knowledge gap. *Financial Times*. 15 November. https://www.ft.com/content/8d96e3c4-be3b-11e7-823b-ed31693349d3

[19] UNESCO. Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development. *Working Papers on Education Policy*. No. 7. https://unesdoc.unesco.org/ark:/48223/pf0000366994

[20] BusinessTech. These 12 fintechs have the attention of South Africa's biggest banks. *BusinessTech*. 3 October. https://businesstech.co.za/news/finance/344240/these-12-fintechs-have-the-attention-of-south-africas-biggest-banks/

[21] Groepe, F. 2018. A welcome address and opening remarks by Francois Groepe, Deputy Governor of the South African Reserve Bank, at the Innovation and Cybersecurity Conference. Johannesburg. 28 August. South African Reserve Bank. https://www.resbank.co.za/Lists/Speeches/Attachments/534/Welcome%20opening%20remarks%20DG%20Groepe%20Cybersecurity.pdf

[22] Moosajee, N. 2019. Fix AI's racist, sexist bias. *Mail and Guardian*. 14 March. https://mg.co.za/article/2019-03-14-fix-ais-racist-sexist-bias

MEDIA & DEMOCRACY

With the recent scandal of Cambridge Analytica – where the company scraped data from Facebook users and implemented advanced data analytics to target Americans with propaganda-like advertising and news in order to sway voters in the 2016 Presidential elections – global concern is rising as to the impact of social media, data and AI on the integrity of democratic processes, such as voting. This includes concerns over "fake news", or misinformation, and the impact on freedom of expression as social media platforms engage in content take-down. At the same time, media organisations are responding to these challenges by developing their own data-driven tools. For example, in South Africa, Dexter is being used by Media Monitoring Africa to automate the classification of news sources[23].

SKILLS & INFRASTRUCTURE

The majority of data and AI-related technology development and implementation is led by international organisations, which has implications for whether these tools serve the needs of the majority of South African residents. In response, as the Deep Learning IndabaX suggests, a goal for the local research community is to look at "AI and its complexities from our African perspectives rather than Africa from an AI perspective"[24]. A related consideration is whether the availability of connectivity and computing resources supports research as well as use of these technologies more widely. As examples, the availability and cost of data is a key impediment for access to digital services by the broader public, whilst locating data centres on the continent continues to be important for the execution of more time-sensitive cloud-based processing[25].

[23] See the Dexter application: https://github.com/Code4SA/mma-dexter/wiki
[24] Deep Learning Indaba X. South Africa 2020. https://indabax.co.za/
[25] Fourie, W. 2019. Cloud computing could be key to speeding up Africa's development. *SA SDG Hub*. 5 September. https://sas-dghub.org/cloud-computing-could-be-key-to-speeding-up-africas-development/

POLICY RESPONSES IN SOUTH AFRICA AND GLOBALLY

Globally, data protection laws constitute the key regulatory mechanism through which AI is currently governed. The African Union (AU) Convention on Cyber Security and Personal Data Protection defines limits on personal data reuse and the use of 'auto-mated processing' similar to the European Union's General Data Protection Regulation (GDPR).[26] A limited number of states have ratified the convention, but the AU Commission continues to provide technical guidance and recommendations for member states.[27]

In South Africa, the foremost legislation concerning the processing of data is the Protection of Personal Information Act (POPIA) [No 4 of 2013] which governs the processing of personal data in the Republic. The Act further establishes the Information Regulator (IR) to oversee and enforce compliance with POPIA as well as the Promotion of Access to Information Act (PAIA) [No 2 of 2000], which provides for the right of access to public interest information and data. Whilst PAIA is fully in force and being used to access socially-relevant data, such as on protests[28] and mining lease agreements[29]; only certain sections of POPIA have come into force, including the establishment of the IR, which is in the process of delivering on its mandate.

POPIA was developed to be broadly in line with the European Union's GDPR, which is the leading global policy response in this area and is directly relevant to South African organisations that collect or process the data of European residents, such as for ecommerce or consumer analytics purposes. With regard to AI, GDPR includes provisions ensuring that individuals must not be subject to automated decision-making without explanation and consent[30], and that systems found to be negatively and systemically-biased towards particular groups of people – whether on racial, gender or other grounds – may be fined up to 4% of their annual global revenue[31].

[26] African Union. 2014. *African Union Convention on Cyber Security and Personal Data Protection*. Article 14(5). As yet, South Africa is not yet a signatory to this Convention.

[27] Internet Society and Commission of the African Union. Personal Data Protection Guidelines for Africa. *Internet Society*. 8 May 2018. https://www.internetsociety.org/resources/doc/2018/personal-data-protection-guidelines-for-africa/

[28] South African History Archive. 2018. Data recorded over the period 2013 to 2018, in the Incident Registration Information System (IRIS), for each incident classified as either "crowd (unrest)" or "crowd (peaceful)". http://foip.saha.org.za/request_track-er/entry/sah-2018-sap-0001/

[29] Corruption Watch. Our Recent PAIA Reques. https://www.corruptionwatch.org.za/learn-about-corruption/reports/our-recent-paia-requests/

[30] Art. 22 GDPR - Automated individual decision-making, including profiling. European Union. https://gdpr.eu/article-22-automat-ed-individual-decision-making/

[31] What are the GDPR Fines? European Union. https://gdpr.eu/fines/

In South Africa, various other policy and regulatory instruments are being developed to address the role of AI and data in a diversity of sectors and to complement the objectives of both national and international laws mentioned above. These come from two linked directions. The first are those policies related to Information and Communications Technology (ICT) use and sector development. Key government actors include the Department of Communications and Digital Technologies (DCDT) and the Department of Trade, Industry and Competition (DTIC) which continue to pursue policy positions that will shape AI and data adoption across all sectors. Following approval of the National Integrated ICT Policy White Paper in 2016, and spin-off strategies concerned with issues such as open data, AI and digital skills development; the DCDT is now prioritising support for the Presidential Commission on the 4IR which is reviewing opportunities and challenges faced by South Africa in the 'digital industrial revolution'[32]. Concurrently, the DTI is leading a process to amend the Copyright Act of 1978, which has significant implications for how data may be reused, including for AI applications[33], as well as for promoting accountability in algorithmic processing.

The second policy direction focuses on building research and innovation capabilities around AI and data, largely driven by the Department of Science and Innovation (DSI) and its agencies. In March 2019, the DSI published the STI White Paper which aims to use emerging technologies – including data driven technologies and AI – for promoting inclusive economic growth.

The notion of "inclusivity" here captures the broader socio-economic policy commitments of the government to address poverty, inequality and unemployment, as set out in the country's National Development Plan (NDP) of 2014[34]. The STI White Paper makes a specific reference to the influence of data-driven and AI technologies in South Africa's various sectors and its role within the 4IR, and calls for expansion of the Centre for AI Research (CAIR)[35] and development of a national AI strategy under Section 4.11.4. This reflects a narrowing of focus in the implementation of the earlier ICT Research, Development and Innovation (RDI) Roadmap, which now places a relatively strong emphasis on data science and AI[36].

Despite much of South Africa's AI and data-related policies and legislation being at a formative stage, the country's existing regulatory framework has relevance to both the current governance of data and AI, as well as the conceptualisation and interpretation of new policies in this space. In particular, the founding values of the Constitution[37] and the rights set out in Chapter 2 remain a crucial touchstone for understanding what inclusivity means within the South African context.

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[32] The Presidency. 2019. *President appoints Commission on Fourth Industrial Revolution*. Pretoria: Republic of South Africa. 9 April. http://www.thepresidency.gov.za/press-statements/president-appoints-commission-fourth-industrial-revolution

[33] See the Copyright Amendment Bill (B13-2017). https://pmg.org.za/bill/705/. Also see Rens, A. 2019. Copyright flexibility opens the door to decisive AI advantages. *Business Day*. 15 October. https://www.businesslive.co.za/bd/opinion/2019-10-15-copyright-flexibility-opens-the-door-to-decisive-ai-advantages/

[34] National Development Plan. 2014. Pretoria: Republic of South Africa. https://www.gov.za/issues/national-development-plan-2030

[35] Centre for Artificial Intelligence Research (CAIR). http://cair.za.net/

[36] Council for Scientific and Industrial Research (CSIR) and DSI. *South Africa's ICT RDI Roadmap 2013–2023. The Annual ICT RDI Update: Our Digital Future.* Pretoria: Republic of South Africa. http://digitaladvantage.co.za/wp-content/uploads/2019/10/K-15187-CSIR-ODA_DevV11_LR.pdf

[37] Constitution of the Republic of South Africa, Act 108 of 1996.

As the STI White Paper notes:

" *The success of South Africa's response to the 4IR, which will include ensuring that people are not left behind as society and the economy become more technologically driven, will depend on how well we exploit the pivotal role of information and communication technology (ICT) and harness the potential of big data.* "

ETHICS AND HUMAN RIGHTS IN AI AND DATA GOVERNANCE

Global technology firms have become high-profile supporters of various ethics initiatives related to AI and data. However, many of the current ethics governance structures and approaches driven by technology firms are implemented as a techno-regulatory fix post-implementation[38], rather than addressing ethical questions as part of AI and data projects' design and build[39]. In addition, ethics are not universal, differing from one context to the next, and current frameworks do not go far enough in creating binding norms or rules against which the rights of all individuals can be protected. Whilst ethics have a role to play, a number of commentators have argued that standards and practices for protecting human rights, such as the UN Guiding Principles on Business and Human Rights, could provide an established structure for defining effective remedies for AI impacts[40].

[38] Ochigame, R. 2019. The Invention of Ethical AI: How Big Tech Manipulates Academia to Avoid Regulation. *The Intercept*. 20 December. https://theintercept.com/2019/12/20/mit-ethical-ai-artificial-intelligence/

[39] Marda, V. 2018. Artificial Intelligence Policy in India: A framework for engaging the limits of data-driven decision making. *Philosophical Transactions A: Mathematical, Physical and Engineering Sciences*. 376 (2133).

[40] Krishnamurthy, V. 2018. It's not enough for AI to be "ethical"; it must also be "rights respecting". *Berkman Klein Center Collection*. 10 October. https://medium.com/berkman-klein-center/its-not-enough-for-ai-to-be-ethical-it-must-also-be-rights-respecting-b87f7e215b97

On an international level, various guidelines have been developed that inculcate "ethics" as the overarching governing value for the regulation of the development and use of AI. While the debate around the limitations of ethics as a governing framework are significant (see above) the majority of these guidelines focus on three core principles that remain universally pertinent for regulating AI and data. These are: (1) fairness (ensuring that AI and data models do not unfairly discriminate against certain individuals or groups);
(2) accountability (ensuring that AI and data systems can be made accountable to those whose lives they effect); and
(3) transparency (ensuring openness in the processes, decisions and outcomes of AI systems).[41]

At an organisational level, this is reflected in the revised King IV Code on Good Corporate Governance's Principle 12 which requires the "ethical and responsible use of technology and information" by businesses[42]. At a global level, particularly within so-called developing contexts, there is considerable interest in how AI and data can contribute to progress on the Sustainable Development Goals (SDGs) and ensuring no person is left behind, often anchored by providing all people with a legal (digital) identity[43].

However, unless many of the highly skewed characteristics of digital technology availability and use are addressed, such as the lowering of data costs, it is likely that AI and data will lead to further marginalisation[44].

[41] Jobin, A., M. Ienca, and E. Vayena. 2019. The Global Landscape of AI Ethics Guidelines. *Nature Machine Intelligence*. 1, 389 - 399.

[42] Kind IV Code on Corporate Governance. 2016. *The Institute of Directors in Southern Africa*. https://www.iodsa.co.za/page/DownloadKingIVapp

[43] Privacy International. 2018. The Sustainable Development Goals, Identity, and Privacy: Does their implementation risk human rights? 29 August. https://privacyinternational.org/long-read/2237/sustainable-development-goals-identity-and-privacy-does-their-implementation-risk

[44] Gillwald, A. 2019. South Africa is caught in the global hype of the fourth industrial revolution. The Conversation. 20 August. https://theconversation.com/south-africa-is-caught-in-the-global-hype-of-the-fourth-industrialrevolution-121189

A WAY FORWARD FOR POLICY AND PRACTICE

Realising an approach to AI and data policy development and implementation that is anchored in human rights will require a number of measures to ensure such processes are fair, transparent, predictable, accountable, do not perpetuate unfair discrimination and seek to promote an inclusive society. Such measures include:

1

Private sector, government and academic organisations can increase public engagement with and awareness of data-driven technologies and AI, particularly insofar as it can affect and shape the lives of individuals and communities.

2

Rapidly seek to bring into effect the POPIA and equip the Information Regulator with all necessary resources to provide effective oversight over the processing of personal data in South Africa. This includes providing interpretation on the application of POPIA provisions on automated decision making, and how such processing should be regulated for the public good.

3

Universities and research institutions should seek to develop engagement processes that enrol diverse participants and perspectives as part of AI and data research projects, and carefully consider how industry partnerships may lead to conflicting commercial and ethical interests.

4

In developing AI and data policies and programmes, government departments and agencies must ensure meaningful public participation and seek to strike a balance between the interests of industry and civil society stakeholders. This includes in the promulgation of the CyberCrimes and CyberSecurity Bill, Copyright Amendment Bill and possible Electronic Communications Act amendments, as well as the roll out of POPIA.

5

In developing South Africa's national strategy on AI and national response to the 4IR specific attention should be paid to the following:

- the ways in which, and literature around how, AI and data use can reinforce discriminatory social categories and produce unfair biases that have a material effect on how people chose to live their lives
- how such technologies can be used by powerful agents to exploit less powerful groups and individuals, and develop localised context-driven mechanisms for addressing this
- developing strong accountability and transparency mechanisms for the use of AI in line with the principles of governance set out in the Constitution and, for businesses, under the King Codes
- how data and AI can be used to address South Africa's socio-economic inequalities, and economically empower disadvantaged individuals and communities, which includes taking proactive measures against the economic monopolisation of data-driven technologies and enabling infrastructure, through consultation with the Competition Commission