AI – Ready? How African governments are assembling policy in anticipation for data and AI driven techno-futures.

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Abstract

With the current growth of artificial Intelligence (AI)-driven applications in Africa, and the increasing media attention on data-driven decision-making in virtually all key spaces in government as well as the society, policy makers are becoming increasingly aware that AI-driven ecosystems are inevitable. In this chapter I draw from feminist STS approaches to discuss how different governments are anticipating AI technologies, paying particular attention in the ways this anticipation relates to framing and reframing of public policies. Of interest is the way the policy strategies capture or mute the role of the institutions and the people that will shape AI investment, design and use, and overall governance. By examining the three publicly available AI policy strategies, the chapter examines how different governments in the continent are anticipating and framing AI techno-futures. The chapter responds to the question: What do the publicly available AI policy strategies reveal about how African governments are framing and anticipating AI techno-futures? It tries to compare how different policies are framed, as well as what they reveal about how the governments see AI and big data compared to how the market sees it.   The policies analysed reveal that African governments foregrounds technological advancement, economic growth, and research, and less focused on people and institutions whose role is important in determining how the value in the technology is shared equitably. The chapter argues that African governments and critical AI scholars need to invest in policy methodologies that counteract the tendency of large and emerging tech actors from presuming an inevitable journey of converting data to monetizable knowledge and other useful products. The chapter proposes that governments and AI critical scholars should "start seeing like a market" by focusing on the apparent assemblage of power, knowledge, and profits, and advancing policy frameworks that require a comprehensive account of how value is extracted from data collection processes, and how this 'value' translates to the flourishing or disenfranchising of the populations from which data is extracted. The chapter reveals some gaps and challenges to deliberative policy assemblage and engagement in relation to AI techno-futures in Africa. It proposes some of the ways different actors can contribute meaningfully to AI policies through deliberative policy processes.

Introduction

Government policy spaces are political spaces shaped by different competing interests and more often exhibit the gap between the prescribed and the practiced (Aminuzzaman, 2013; Jackson, 2021). They are places where the language is mainly political, and power asymmetries, political entrepreneurship and political consensus form the character of the spaces(Jackson, 2021). This is the environment that shapes how policymakers perceive their world, and how narratives about everything including technology are framed (Ndaka, 2023). While local and national technological goals are important, global discourses and goals of

economic and technological growth have a lot of influence on what policy agendas governments prioritize on (Miller, 2021). And because political and economic interests are normally at the centre of all policy negotiations, the policies that emerge are a product of contesting policy agendas (Kingdon, 1995), with the 'facts' that emerge through these contests and negotiations being presented as the policy proposals (Hill, 2014), despite being a result of claims and counter claims of different interests, power and politics. But who dominantly shapes these 'facts'? whose agendas dominate the technological futures? Who gets to benefit from these mythical shared political and technological futures?

Many public and private institutions are currently trapped in a shared belief that science and technology holds solutions to all social problems, with an ability of delivering shared benefits (Miller, 2020). They are therefore assembling and anticipating their technology policies and strategies hoping to achieve these ends. However, most of the strategies are imbued with ideologies like techno-nationalism, techno-optimism and techno-fixes – which dominantly inspire how the purported shared visions of the future are mirrored in the national goals and policies, as well as how technology investments are justified (Jasanoff & Kim, 2015; Miller, 2021). However the critical question of embedded power relations, knowledge representation and distributive equity remains muted in the current AI policy debates. The non-dominant and 'unpopular' imaginaries get silenced, slowed and/or eradicated daily in favour of the dominant imaginaries(Miller, 2020), mainly shaped by a few powerful actors. This shows how sociotechnical decisions are shaped, with the politics of 'mattering' dominantly determining who shapes, which technological goals and perspectives (Burch & Legun, 2021). This exclusion/inclusion dynamics provide a conducive environment for a few dominant actors to decide how the larger society envisions the technological shared futures, and how they are further stabilized in real life as pointed by studies(e.g. Jasanoff & Kim, 2015; White, 2015).

Studies show that techno-politics can enhance or disenfranchise, and potentially shut down alternative pathways of societal sustainability (Leach et al., 2010; Moore, 2007) (Ndaka et al 2024). This especially depends on individual governments anticipate technology, how the different sociotechnical imaginaries and pathways are normalized and naturalized in both histories and futures of that society, and how these pathways materialize in national and global policy instruments (Harvard STS Program, 2010; Jasanoff et al., 2004). Therefore the potential of policies that support a mythical inevitability and rightness of AI and emerging technology, including its framing can inevitably provide a pathway for profit making entities to thrive at the expense of other parts of the society(Crawford, 2021; Hasselbalch, 2021).

In Africa, the current AI-driven application and economies are getting increasing attention in virtually all key government sectors and societal spaces. While no doubt AI may produce positive effects on African populations, the question is whose AI and whose benefits is the current AI sociotechnical infrastructure propagating? Sustainable AI techno-futures may only be feasible if AI and emerging technology research, its governance, and related policy debates are premised on African societal needs (Ndaka & Majiwa 2024), shaped by contextual and cultural values (Robinson, 2020; Ruttkamp-bloem, 2023). This ensures that technology applied in Africa does not treat Africans as passive objects and recipients of technological tools (Hoffman, 1990), reducing them to performers of global discourses and regimes of truth as observed by Graham (2015). Apparently African perspectives and knowledges are muted in the global debates and ethical principles that are shaping AI agenda(Eke & Wakunuma, 2023), and seemingly a continuation of knowledge hegemony propagated in the previous four industrial revolutions(Okyere-manu, 2021).

In this chapter therefore, I draw from feminist STS approaches to discuss how different governments are anticipating AI technologies, paying particular attention in the ways this anticipation relates to framing and reframing of public policies. Of interest is the way the policy strategies capture and/or mute the role of some institutions and the people, including which institutions dominate and which ones get subjugated. This kind of analysis is important in understanding which entities dominantly shape how AI investment, design, use, and overall governance emerge, and whose interests get enrolled in instruments that define the shared techno-futures in Africa. By examining the publicly available AI policy strategies, the chapter tries to reveal how different governments in the continent are anticipating and framing AI techno-futures. The chapter discusses what the different policies reveal about how the governments see AI and big data, vis a vis, how the market sees it. The three policies analysed reveal that African governments foreground technological advancement, economic growth, and research, and gives less focus on people and institutions whose role is important in determining how the value in the technology is shared equitably. One of the socio-material consequence of this approach is failing to consider people as legitimate enactors of technology, reducing them and their social institutions into passive recipients of technology, and tradable data(Ndaka et al., 2024). The chapter therefore argues that African governments and critical AI scholars need to invest in policy methodologies that counteract the tendency of large and emerging tech actors from presuming an inevitable journey of converting human data to monetizable knowledge and other useful products. Drawing from Fourcade & Healy (2017),

this chapter proposes African governments, research institutions and critical AI scholars to "start seeing like a market" by focusing on the apparent assemblage of power, knowledge, and profits, and advancing policy frameworks that require a comprehensive account of how value is extracted from data collection processes, and how this 'value' translates to the flourishing or disenfranchising of the populations from which data is extracted.

AI Policy Scapes: Imagining and Assembling AI policies

In the recent past a plethora of studies that provide insights about technology governance have emerged. While this field touches on a diversity of subjects drawing from public policy, science and technology studies (STS), philosophy, economics, ethics, innovation studies and political science among others, they all seem to recognize a co-evolving and co-design role of technology and society(Ulnicane et al., 2021). AI technologies are not simply seen as mere tools, but devices that modern societies can use to explore and create new social frontiers, and achieve new social and political ends (Jasanoff, 2016). Thus as human societies evolve, they keep imagining and re-imagining their futures, while materializing these visions in both tools and policy instruments(Jasanoff, 2016; Jasanoff & Kim, 2015). However, technology is inherently political (Latour, 2011; Jasanoff 2016), is heavily imbued with political and corporate interests(Hasselbalch 2021; 2022), and is intrinsically designed to enact political values that achieve political and corporate endings (Hecht, 2009) for those who control it. Thus technological choices and related policies in any society are designed to "order the society, distribute the benefits and burdens, and channel power"(Jasanoff 2016, pp. 242-243). To this end, the idea AI technology does not operate in isolation rather, it is entangled in the society (Borrás & Edler, 2014; Leonardi & Rodriguez-Lluesma, 2012). Therefore it has the potential of being controlled by those who wield power, to achieve political and capitalist goals (Zhang, 2014). Thus the importance of recognition and involvement of wider range of interdependent actors in such as public research institutions and civil societies in its governance, while considering the coordinating role the government and other dominant actors(Ulnicane et al., 2021).

Considering such unequal and emerging power dynamics, and the potential of current and future technological possibilities, then policy spaces should ideally be 'epistemediation' and border spaces, that bridge policy and practice (Brundiers et al., 2013). They hold a fundamental role of defining what is relevant and important for the society in line with scholarship that view the policy actors as custodians of public good (Brundiers et al., 2013; Jahn et al., 2012; Wiek et al., 2012). It is therefore the role of policy spaces to facilitate the exchange of insights from

peer agencies, different experts and other technology actors, and use those situated insights to shape decision making and sustainable technology futures (Ndaka, 2023). However, more often, decisions about technology in policy spaces have been invisibly controlled by dominant knowledge holders and powerful tech actors(Jasanoff & Kim, 2015; Rosendahl et al., 2015). The AI debates have been heavily governmentalized, and are being used to promote policies that advocate for unlimited economic growth through technological advancement(Klein, 2014). Within these narratives powerful actors like government and technology multinationals use their financial and political influence to promote capitalist ideologies(Zhang 2014), using nationalistic ideologies to optimistically drive unlimited technology(Mclennan, 2015; Sætra, 2021). These ideologies end up materialising within national and economic goals (Jasanoff & Kim, 2015), and therefore engraved in the policy instruments as shared visions of future(White, 2015). Studies have shown that the discourses that shape technology policy implicitly foreground foundational requirements of capitalist economic growth, as well as a commitment to techno-fixes for emerging and compelling problems(Klein, 2014; Mclennan, 2015; Nobrega & Varon, 2021).

Methods and Theoretical Approach

This study analyses the publicly available AI policy strategies; Egypt, Mauritius, and Rwanda (Mauritius 2018; National Council of AI Egypt, 2021; MINICT 2022). It draws from a couple of STS and feminist theories - socio-material and ontological politics(Mol 1999; 2002), situated knowledge(Haraway 1988), assemblage approach(Grove 2017), and sociotechnical imaginaries(Jasanoff & Kim 2015). The chapter will focus on two aspects, the policy framing, as well as how institutions, people and societies are engaged and/or seem to be positioned within these visions of the future. Drawing from Mol(2002), the chapter also considers anticipation of AI technology and conception of related policies as socio-material politics of the present (Mol, 2002) situated within unique places/spaces(Haraway 1988), which are not shaped by strategic planning by experts(as often believed) but by everyday decisions and practices made by those who control these sociotechnical assemblages(Legun & Burch, 2021), and entrenched by everydayness of norms and practices of those who use the technologies(Mol 2002). It also draws from Groves (2017), and uses assemblage approach to think about how policy is currently conceived, and how this shapes potential AI futures. Therefore the real sociotechnical outputs mirror products of complex and unequally entangled socio-material environments – and continuously shaped by embedded norms and practices. And this is seen

as dominant visions, which seem to conveniently enrol in national goals, and are used to define the shared national techno-futures(Jasanooff & Kim 2015).

Anticipatory Framing AI policy in African Context

Worldwide governments, international organizations and corporates are actively assembling and adopting ethical guidelines and principles that seek to leverage of AI benefits while mitigating the risks associated with AI use (Cowls & Floridi, 2018; Jobin et al., 2019). Over 100 such strategies, codes and frameworks have been formulated in the recent years globally (Jobin et al., 2019; Schiff, 2022; Schiff et al., 2020), 30 of which are national AI strategies, and 20 or more constituting go preliminary frameworks or task forces to produce such formal strategies (Zhang et al., 2021). Most of these strategies contain vital information for understanding how governments are imagining AI, and hence conceiving the benefits as well as the risks and impacts to their societies (Schiff, 2021).

African nations are not only lagging behind in this exercise, but also those who have made some efforts seem to be busy performing certain kind of dominant discourses. In the recent years, only three African countries have publicly published national AI strategies – Egypt, Rwanda, and Mauritius. These strategies seem to frame their goals around economic growth and technological growth, while muting other contextual economic and socio-ecological concerns which may induce inequality in the region. Furthermore, ethical principles of AI that are being developed at global scale - that the African nations have been invoking in their various policy documents - have conspicuously muted context specific perspectives of the African people (Eke & Wakunuma 2023). Most of the global ethical principles being developed are mainly standardized in their conceptualization, with little or no consideration of contextual meanings and implications, despite some studies showing that situated societal values have a lot of influence on how different concepts of AI ethics are defined and materialized in national and regional policy instruments(Robinson, 2020). Despite the globalized narratives, these policies essentially carry ideologies that amplify the concerns of the global north(Graham 2015). This calls for urgent contextual cultural analysis, interpretation and application of AI and related ethical principles (Hegarty & Rubinov, 2019; Ruttkamp-bloem, 2023), to allow alternative worldviews and epistemologies to legitimately emerge in the current digital order and knowledge production systems (Ndaka et al., 2024; Rosendahl et al 2015). Framing of AI strategies, and assembling of the actual policies in Africa, as currently is, seems to overfocus on unlimited economic growth that sustains and is sustained by technology as highlighted by

Klein(2014) and is working towards a mythical global corporation(Mclennan 2015). While claiming to aim at a singular future where all are represented, there is less focus on defining how the economic, social and ecological concerns and risks- especially as relates to those who live in the tech margins - can be addressed explicitly. There is little or no focus on how impressions like technology value e.g. benefits and their access are defined, and articulated in reality(Carolan 2017). This kind of laid back approach benevolently gives tech companies investing in Africa an inevitable pathway promote their corporate agendas and consolidate power through AI technology development, and massive data accrual for profits.

Africa AI policy anticipation and its apparent assemblage is still at infancy, compared to the actual technological assemblage. In fact, the regional digital policy agendas are adopting a wait-and-see approach to technology policy and regulation, by formulating generalized strategies that allow an unfettered growth of technology and accrual of data by large tech[1]. This is also reflected in the way the current technology strategies are framed to fit within some global discourses, which although framed global, they are at best hyperconnected nodes of global north perspectives(Graham 2015). Most these discourses foreground unlimited economic growth, through which growth sustains and is sustained by technology as pointed by Klein (2014). They also form basis for entrenching global cooperation (Mclennan, 2015) and advancement of technology industry growth (Wilson, 2017) eventually (re)entrenching existing colonial, capitalist and political power structures. These policies however have very little focus on the assemblage of power and interests, that would consider contextualized technological production(Ruttkamp-Bloem 2023), distributive equity of the aforementioned growth (Miller, 2020) and mitigation of the societal risks that come with AI. Globally, AI has been dominantly hyped for its ability to address social problems (Fauset, 2008), and has been recently applauded for the novel advances due to increased computational power and big data(Coeckelbergh, 2022, Dignum 2019; Markus and Davis, 2019). Its emerging character as well fast growth, large scale impact, compounds its uncertainty and ambiguity (Rotolo, Hicks & Martin 2015). However, the hype seems to mask the uncertainty and ambiguity, with the former used as an excuse for increased appetite for massive accrual of individual data by big tech multinationals and private companies(Fourcade & Healy 2017). This kind of framing also has influence on how governments anticipate AI, how subsequent policy instruments are framed, and whose interests end up getting promoted, as well which interests get muted.

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[1] See: https://www.afronomicslaw.org/category/analysis/afcftas-digital-trade-rules-are-not-fit-africa

Like the previous industrial and technological revolutions, African nations seem to be passively taking up technological ideas, essentially performing more powerful global discourses swirling around them (Graham 2015). These discourses seem to promise a utopic singular future for all through AI and emerging technologies, while problematically entrenching historical power structures and capitalist growth (Zhang 2014; Crawford 2014). This is often happening without key government and tech actors, as well as users questioning these 'regimes of truth', by asking critical questions like who are the beneficiaries of these discourses' we are promulgating? – which are masquerading as global discourses (Graham 2015). And this explains why technological know-how used in Africa has inherently remained a preserve of western nations (Okyere-manu, 2021), and now the new Asian entrants, like China, Korea and India. Thus, while the historical power structures remain unchallenged through the last four industrial revolutions, new power brokers are entering the global arena through AI and emerging technology.

Despite emerging forms of agitation and radical debates to decolonize technology, the old tired performance of global standards is still visible in the kind of policy framing in all the publicly available AI strategies for the African countries. This presents a dissonance between what Africa actually requires and what is prescribed in policy. Especially in the struggle between how value is defined, whose value, how the value is accessible, and which impressions of this value are imposed on citizens(Carolan 2017; 2018), but more importantly the balance between technological advancement and distributive equity(Miller 2020).

The three publicly available AI strategies frame their policy objectives and targets around three frames; economic frame, innovation frame and ethics frame. The economic frame amplifies skills development and workforce, enterprise and start-ups, government and public sector improvement and economic growth. The innovation frame amplifies tech advancement, research and development (Mauritius 2018; National Council of AI Egypt, 2021; MINICT 2022). These two seem to dominate in shaping the three AI strategies. However, despite the frequent mentions of ethical frameworks and regulation as a focus of all the three policy strategies, ethics and regulation of AI is not explicitly discussed in terms of policy formulation and practice in AI ecosystems in Africa. This is despite global and local emphasis on the existential risks of AI, as well as other economic and socio-ecological risks of AI as highlighted in studies (e.g, Hao 2019, Strubbell et al 2020, Patterson et al 2021, Boulamwini & Gebru 2018, Crawford 2021, Hogan 2015, Mytton 202, Balde et al 2017; Forti et al 2020, Hasselbalch 2021). In a nutshell, the three economies seem to have adopted a laid-back policy approaches

which seemingly 'hides' in safety of the global discourses – avoiding ruffling the feathers of existent power holders, big foreign tech investors or other donors funding initiatives that are benevolent to techno-optimistic ideologies. This framing has long-term socio-material consequences to the continent of Africa.

Institutional and People Engagement

Another aspect of policy assembling that does not emerge clearly in the current national AI strategies is the assemblage of AI and policy institutions. The three policy strategies seem to be speaking to a certain unique form of institutional arrangement and engagement. Institutions are considered as formal and informal processes and rules that shape how people drive their actions – which also include physical infrastructure, placement offices, and material relations (Legun & Burch 2021). This concept of institutionalism draws from a series of studies (e.g Ingram and Clay 2000; Nee 2005; Nee & Swedberg 2020) and reflects social and political arena where strategic choices about new technologies are enacted. Ideally AI policy environments may constitute of government, corporate, industry and individual institutional environments.

In the current three national AI strategies, only Rwanda seems to have outlined the role of government institutions. However, the clarity is only on the roles of government institutions, while the roles of other institutions like start-ups, local and foreign technology companies, civil society organizations, although mentioned remain mostly vague. The process of AI policy seem to be governmentalized probably reflecting the kind of governance in Rwanda – autocratic. However, this governmentalization does not in itself salvage the policy instrument from the control of systemic and globally organized tech superpowers. The silence about the invisible role played by these entities speaks a lot about who may actually be invisibly driving the current government policy. The other two policy strategies in general openly elevate the role of big technology companies, research institutions and start-ups in driving the technology agenda. While not challenging the extant unequal power relations, the policy documents enjoin in the globalized techno-optimistic agendas, that promote unlimited technology growth and mythical global cooperation(Klein 2014; McLennan 2015). However, Mauritius takes an interesting twist by taking a multisectoral approach to the policy strategy, and defining the different roles and institutional arrangements and outputs that may emerge, albeit, the policy strategy largely remains trapped in global discourses.

Overall, in the three strategies, there are no clearcut roles, responsibilities, and accountabilities placed on different institutions in these policy agendas. This leaves power voids that are ready for occupation by those who wield power in the AI industry(Hasselbalch 2022), who are not only permeating the national policy space, but also running the policy agenda and controlling key policies in the region. This is now visible in the recently leaked African Continental Free Trade Area(AfCFTA) digital trade protocol[2], which provides unfettered access and movement of African data and provides special secrecy allowance which elevates IP practices that erect barriers to meaningful achievement of AfCFTA original objectives.[3]

People Engagement

The hype about AI is accompanied by public policy controversy and governance strategies that seem to foreground diagnosis of problems and offering them prescriptive solutions which are mostly techno-fixes (Ulcinane et al 2021). This kind of governance is a characteristic oligopoly where a small number of tech companies and powerful government actors control the tech governance agenda, with little or no consideration of societal needs and concerns (Schiff 2021, Ulicinane et al 2021). The widespread concerns and controversies about the ability of AI ethics to solve AI issues highlight vagueness in the way these principles might be interpreted and implemented – and this is working to serve vested interests of powerful AI actors who are already making suggestions for self-regulation, strategic delays and avoidance of AI regulation arguing that this might slow innovation (Hagendorff, 2020; Mittelstadt 2019).

In these conversations, the voices of individual citizens, corporate users and the civil society seem to be dominantly excluded. Schiff (2021) argues that most global AI strategies have failed to mainstream the role of education and awareness about AI and agendas of key decisionmakers. This is despite major concerns raised about AI which range from consolidation and concentration of power, wealth and social inequality, and discrimination (Hasselbalch 2022, O'Neil 2016, Boulamwini & Gebru 2018; Brousaard 2018; Fry 2018). People and society form the centre of AI, because AI cannot be isolated from the society that shapes it, and for whom it is created. It not only shaped and shapes the society, but also co-evolves with it - why it is a sociotechnical system (Hasselbalch 2021). There is therefore high expectations of public engagement in multiple nodes to ensure that diversity, representation, representativeness and equality in AI governance, development, and use (Ulcinane et al 2020) – but is this happening?.

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[2] https://www.bilaterals.org/IMG/pdf/afcfta_digital_trade_protocol_-_9_february_2024_draft.pdf
[3] https://www.afronomicslaw.org/category/analysis/afcftas-digital-trade-rules-are-not-fit-africa

Despite these expectations, most strategies in Africa seem to mute this conversation with little or no mention on how governments and tech actors intend to build that awareness as well as engage other actors like civil societies and public benefits organizations in the development and use of AI and related ethical and regulation principles. This is despite new forms of agitations against some micro-aggressions associated with AI industry in Africa. For instance, Kenyan gig labourers have been highlighting the unfair work conditions of the invisible labourers powering AI industry[4], there have been mentions of past and current use of AI to fuel conflict through misinformation and disinformation in some African countries[5], and not to mention the many ways AI is daily used in social media like Facebook, TikTok, twitter to drive negative gender norms(Ndaka et al 2024), skewed political agendas and hate speech across the continent through algorithmic reward systems and engagement[67].

In the three policies strategies, the concept of inclusion largely focuses on skills development and research, as well as inclusion of 'missing data'. But who is being included, why and what are they being included in? What is inclusion if one gets included in structures where they were systemically excluded? A more critical question is why has that data been 'missing'? And why is it important now? The concept of creating awareness and engaging people in the conception and co-creation of these solutions and related ethical and governance principles is critically missing. This kind of inclusion enables people into a shared space where they can ask critical questions about what their exclusion/inclusion means, attend to the unequal power dynamics as well as define what meaningful inclusion means for them, but more importantly bring their rich perspectives into the technologies being designed for them (Ndaka 2023). AI industry however, in these strategies is presented as a creator of solutions for people, and a fixer of social problems(Fauset 2008). And the people are expected to passively take up these solutions dominantly prescribed by a few powerful actors, who also seem to not only narrowly define societal problems (Ulcinane et al 2021), but also define what benefits are accessible, who accesses them, and what is important and profitable for the public(Carolan 2017; 2018).

Failure to engage people in defining their societal problems, as well examining different policy agendas(including the hidden interests and politics), and defining other aspects like access, benefits, and risks of AI – including contextually defining and interpreting these concepts

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[4] see: https://www.medianama.com/2023/07/223-kenyan-workers-call-for-investigation-into-exploitation-by-openai/

[5] See: https://ourworld.unu.edu/en/ai-in-africa-is-a-double-edged-sword

[6] See: https://www.npr.org/2021/10/05/1043377310/facebook-whistleblower-frances-haugen-congress

[7] See: https://genderit.org/articles/women-era-artificial-intelligence-increased-targeting-and-growing-challenges

(Rosendahl et al 2015; Carolan 2017; Ruttkamp-bloem 2023), risks creation of technologies and related policy frameworks that only foregrounds the political and corporate interests of large technology companies, powerful government actors and other corporate actors (Zhang 2014). This in itself provides access unfettered access by these entities to people and their data thereby reducing them to recipients and performers of the technology 'regimes of truth' from large tech actors (Graham 2015), and their resulting technology possibilities. Citizens own the data that is being used to develop these AI technologies to useful tools, and therefore they have a legitimate agency in the deciding how their data is accessed, how it is used and how the value emerging from the products is distributed (Carolan 2017). Lack of engagement further risks low adoption and scaling of otherwise important technology solutions(Kieti at al., 2022).

The processes involving AI development and use are largely characterised by symphonic dance of different interests, power and politics(Darhhofer 2020, Hoffman 1990, Hasselbalch 2022), which may enable or constrict how different actors conceive and enact the AI futures (Ndaka 2023) within the continent. In this context, the more privileged groups often determine which values are impressed in technology, which and whose benefits are considered, how the benefits are distributed, as well as impose those impressions to the larger society (Carolan 2018). It is therefore essential for different nodes of publics to be involved in conceiving and actualizing these AI futures through co-assembling of policies that govern AI development and use.

Aspect/policy	Rwanda	Eqypt	Mauritius
Frames	Economic, innovation and Ethics	Economic, innovation and Ethics	Economic, innovation and Ethics
Institutional dominance (who will policy driving the agenda)	Government	Research institutions, start-ups and tech companies	Research institutions, start-ups and tech companies
People & Democracy	Almost invisible	Almost invisible	An effort to focus on people's needs through sectoral approach, but then

			slips into standardized policy approach.
Unique things about policy	Focus on government role in governing technology dominance from external forces.	Focus of being technology leaders in the region	Focus on addressing uniquely situated and sectoral defined needs of Mauritius
What policies reveal	A colonized autocracy	A colonized theocracy	A colonized democracy

Seeing like the Market: Data Classification and Commodification

Earlier discussions in this article shows that AI policy discussions in Africa are still hierarchically structured to serve economic and national goals, and consolidate power to a privileged few, especially technology owners and other actors who have political and economic interests. This is visible in the framing, the lean and/or selective institutional engagement, and the lack of clear role of the people in these instruments. This is also happening in an environment where invisible and complex activities, as well as politics and interests that involve individual data are actively happening in the internet space, as highlighted by Hasselbalch(2021).

While data classification and rules for calculation and prediction have been used for the longest time in the history of markets to maximize profitability, the new algorithmic sun illuminates a new era in the way these actions are managed – because they can all be managed at once, at a faster speed, continuously and can potentially follow individuals indefinitely (Fourcade & Healy 2017). Therefore, data is no longer collected and classified traditionally. This has changed with new sophisticated forms of collection, and scoring, which also focuses on new types of data like digital image, emotional and behavioural data, which have become increasingly useful in the current data driven economic decision making – which further induces new forms of human categorization and data sharing (Ibrahim et al., 2021; Gepp et al., 2021). The AI-enabled market has become the classifier, the enabler/disabler, and the fixer, while personal records, their scores and categories have been repurposed to tradable objects (Fourcade & Healy 2017). The market currently is experiencing a highly paced commodification and *currencification* of data.

In a market setting, this starts with the dragnet of massive data collection, which is mostly excused for so many reasons e.g. national interests like security and economic planning, and this gives the market free exposure to a vast sea of personal data. What is never clearly outlined is the actual utility of this massive data, which based on scope and scale puts to question the ability of experts to analyse it, but also the technical methods used to analyse it, as well as the morality of the classification and consolidation of power (Fourcade & Healy 2017). Then there is scoring, which involves AI systems that can decide which rules and variables they can use for prediction, scoring and classification of data for themselves, an activity mostly done in a manner that is opaque to most users (Burrell 2016). While previous economic way of doing things broadly applied actuarial methods of rating and scoring consumers, AI has scaled this up in data driven economy. Further, the basis of scoring, rating and evaluation using AI is barely predictable, let alone being knowable to those who rely on these systems (Fourcade & Healy 2017). Thus, the new automated classification is not only hidden in sophisticatedly complexified activities, that invisibly permeates in the users' everydayness in a way that is hard to notice (Diefenbach et al 2022; Aurigi 2007; Augusto 2008), but also has socio-material consequences (Legun & Burch 2021). This opaque classification activities inherently invisibilises the role of human intermediaries, arguably leading them to extinction as summed by Fourcade & Healy (2017) – "If the recorded individual comes to full view, the recording individual disappears into the background, arguably to the point of extinction". This is especially targeting other knowledge systems outside data science, and the larger STEM space. While reducing human beings to currencified numbers or data, the knowledge systems that have historically provided solutions to problems get fenced out.

Use of AI for scoring has also led to encroachment of people's private lives, and other unanticipated consequences like discrimination based on race, marital status and sex (Poon 2013). This is mostly amplified within the off-label use of credit score in decision-making, which further affects people's positions in labour and/or housing markets (Fourcade & Healy 2017). The ritual application of both massive data collection and scoring, regardless of whether individuals are experts or laity, has led to segmentation of some populations, and eventual exclusion of the same from the market. In a global system where Africa and bodies from the global majority are inherently domiciled to the margins, one wonders what possibilities African data entering into these systems can produce to the detriment of the region – especially when the market views the data holders as commodifiable assets.

Hence data in the market is seen as an asset and/commodity in the way it is collected and processed, while these activities are sophisticatedly hidden essentially masking the main goal, which is profits for the large tech companies and political mileage for powerful political actors. The point of concern in the way individual and organizational data and related components are used (Andrew & Baker 2022). Fourcade and Kealy(2017) points out that companies use the collected data, for prediction and scoring so as to develop behavioural interventions through creation of profitable tools and services. In fact many companies are using a combination of emotional contagions like academically supported publications and algorithmic manipulation to achieve their economic ends (Kramer et al 2014; Fourcade & Healy 2017). They specifically use the emotional contagions to create and propagate new truth claims, that help moral-wash and green-wash their activities while delineating new algorithmically defined spaces where individuals and entities – including environments are governed by other powerful entities without their awareness (Andrew & Baker 2022; Lassila 2022). Fundamentally, profits drive the whole AI and big data agenda, as argued by Fourcade & Healy (2017) "The desire for firms to experiment on their own user base is driven mostly by their need to develop accurate, effective and socially acceptable services in a way that benefits the company" (p.6).This is obviously done by using massively attained data to score their tech users, and continuously develop interventions in a way that maximise the profits, with minimal consideration of and accountability to the technology users. That explains the deployment of unfettered mass data collection like in cases of Kenya tagged as inclusion of African data in the foreign AI systems[8]. Worse is the socio-material consequences attached to the use AI surveillance capitalism to re-introduce the colonial norms through mass surveillance in the name of security. For instance, in South Africa, there are concerns that unregulated use of AI systems to monitor citizens is bringing back digitized apartheid[9]

Future Implications of the Opaque kind of Policy Assemblage

With the new algorithmic decision making, accuracy and acceptability are important, hence the increased appetite for vast data, whether it is useful now or in the future(Fourcade & Healy 2017). But who owns the data? How is it obtained? And how do the legitimate data owners gain from the value of their data? The reality of the activities behind AI and big data – how

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[8] See: https://www.reuters.com/technology/kenya-panel-urges-shutdown-worldcoins-crypto-project-within-country-2023-10-02/

[9] See: https://www.technologyreview.com/2022/04/19/1049996/south-africa-ai-surveillance-digital-apartheid/

data is obtained, how it is used for classification and how this is translated to tradable products and services - creates new power structures that induce new economic and epistemic tensions between those who are creating these technologies and the end users, especially in cases where there are contextual differences (Ibrahim et al 2021). While this creates a lucrative space for powerful tech companies to create wealth through data currencification and commodification of people, it also induces new forms of inequalities characterised by knowledge and systemic exclusion, and masked in opaqueness, especially in the way publicly available data is governed. In this big data era, even state produced data that was formally inaccessible practically, has already been brought into the market sphere, and is being repurposed to serve the ever-increasing data appetite by private entities and data brokers, who rebrand it and resell it to third parties or sometimes the government itself (Fourcade & Healy 2017), and this comes with serious socio-material consequences, whether known or not. To this extend then, the algorithmic decision-making leaves a lot to be questioned in terms of accountability of the invisible processes and other related ethical issues((Lehner et al., 2022; Nikidehaghani et al., 2022). The human activities in there are not only opaque but are sophisticatedly complexified in these digital spaces in such a way that they can easily trivialize the epistemic economic and social injustices that may be meted out by and through the AI systems.

This article argues that, by formulating policies that openly frames the AI in favour of powerful tech companies, and leaving out clear definitions on the role of diverse institutions and the people who develop and use AI, gives the entities in power an unfettered access to personal and institutional data, consolidating the economic and social benefits that come from the useful products are generated from this data to a few powerful tech multinationals, corporate and political actors. Further as argued earlier in this chapter, where the benefits are accessible, the access to the benefits, which benefits are accessible and by whom are impressions imposed by those who are in power (Carolan 2017). This kind of scenario creates new technlogically driven power structures that allows those in power to continue thriving at the expense of those who provide the data – further entrenching the wealth inequality. This chapter therefore argues that African governments, critical AI scholars and other AI for good actors need to invest in policy methodologies that counteract the tendency of large and emerging tech actors from presuming an inevitable journey of converting data to monetizable knowledge and other useful products. The chapter proposes that governments and AI critical scholars to "start seeing like a market" by focusing on the apparent assemblage of power, knowledge, and profits, and advancing policy frameworks that require a comprehensive account of how value is extracted from data

collection processes, and how this 'value' translates to the flourishing or disenfranchising of the populations from which data is extracted. By seeing like a market, helps researchers and policy makers to adopt a balanced approach to how AI enters the society, an approach that does not elevate optimistically driven technologies that only foreground capitalist values and ignores the other socio-material dynamics and knowledges that have persuasive claims in the region.

Conclusion

Artificial intelligence (AI) has had a recent upsurge in interest in developing countries as AI systems begin to be integrated into social and industrial development. However, in the context of Africa, AI policy assembling is still at infancy, compared to the real technological. evolution. This chapter thus explores how governments throughout the continent are anticipating artificial intelligence (AI) technologies, highlighting the critical role that framing, institutions and people play in assembling and re-assembling public policies that govern the creation and application of these technologies in society. The chapter argues that African governments and critical AI scholars need to invest in policy methodologies that counteract the tendency of large and emerging tech actors from presuming an inevitable journey of converting data to monetizable knowledge and other useful products. The chapter has demonstrated a disconnect between the societal needs, political agendas and the policies created to serve these societies in the way policy makers are creating national policies through a thorough policy study and analysis of publicly available AI policy frameworks in the region. The analysis shows that African policies foreground corporate and political interests of tech industry by focusing on the unlimited growth of AI tech, and giving less focus on how power is assembled and entrenched in and through the AI ecosystems. The analysis also includes determining how these policy measures fit into the agendas for social, ecological, and economic development at the local, national, and international levels. The main thrust of the argument is that African governments and scholars of AI must invest in policy techniques that challenge the assumption that major tech companies are optimistically trying to achieve societal agendas, and that what they create would inevitably transform into benefits for the wider society. Rather they should focus on AI technology as a sociotechnical assembly that can benefit or disenfranchise the societies.

Drawing on Fourcade and Healy's idea of "seeing like a market," the chapter argues for reorienting attention from unfettered and uncritiqued technology growth, to how the

accumulation of power, information, and financial gain inside AI ecosystems is being achieved by the powerful technology actors to the detriment of the region. It emphasises how crucial it is to develop policy frameworks that require a thorough accounting of the value that is derived from data collecting procedures and how this 'value' affects the welfare or disenfranchisement of the communities that provide the data. The chapter urges a proactive stance by highlighting possible gaps and difficulties in democratic participation with the AI techno-futures. It promotes the adoption of deliberative policy methods involving multiple stakeholders by governments and AI scholars. By doing this, it offers a mechanism for many stakeholders to actively participate in the creation of AI policy, guaranteeing that the advantages of these technologies are shared fairly and that any risks are reduced through open and inclusive decision-making procedures. This chapter basically emphasizes how important it is to have deliberative policy assembling towards forward-thinking policy measures in order to navigate the changing AI landscape in Africa and support inclusive and sustainable development.

References

Aminuzzaman, S. M. (2013). *Dynamics of Public Policy: Determinants of Policymaking and Implementation in Bangladesh*. https://doi.org/10.1007/s11115-013-0262-7

Borrás, S., & Edler, J. (2014). *The governance of socio-technical systems : explaining change* (S. Borrás & J. Edler (eds.)) [Book]. Edward Elgar.

Brundiers, K., Wiek, A., & Kay, B. (2013). The Role of Transacademic Interface Managers in Transformational Sustainability Research and Education. *Sustainability 2013, Vol. 5, Pages 4614-4636*, *5*(11), 4614–4636. https://doi.org/10.3390/SU5114614

Burch, K. A., & Legun, K. (2021). *Overcoming Barriers to Including Agricultural Workers in the Co-Design of New AgTech: Lessons from a COVID-19-Present World*. https://doi.org/10.1111/cuag.12277

Coeckelbergh, M. (2022). Process, Narrative, and Performance: Conceptualizing How Digital Technologies Shape Temporality and Existence as Technoperformances of Time. *Digital Technologies, Temporality, and the Politics of Co-Existence*, 17–51. https://doi.org/10.1007/978-3-031-17982-2_2

Cowls, J., & Floridi, L. (2018). Prolegomena to a White Paper on an Ethical Framework for a Good AI Society. *SSRN Electronic Journal*, 689–707. https://doi.org/10.2139/ssrn.3198732

Crawford, K. (2021). *The Atlas of AI : Power, Politics, and the Planetary Costs of Artificial Intelligence.* [Book]. Yale University Press.

Eke, D. O., & Wakunuma, K. (2023). *Introducing Responsible AI in Africa*. Springer International Publishing. https://doi.org/10.1007/978-3-031-08215-3

Fauset, C. (2008). *Techno-fixes: a critical guide to climate change technologies*. www.corporatewatch.org

Fourcade, M., & Healy, K. (2017). Seeing like a market. *Socio-Economic Review*, *15*(1), 9–29. https://doi.org/10.1093/ser/mww033

Graham, M. (2015). Contradictory connectivity: Spatial imaginaries and technomediated positionalities in kenya's outsourcing sector. *Environment and Planning A*, *47*(4), 867–883. https://doi.org/10.1068/a140275p

Harvard STS Program. (2010). *Sociotechnical Imaginaries - Methods and Resources*. https://sts.hks.harvard.edu/research/platforms/imaginaries/ii.methods/methodological-pointers/

Hasselbalch, G. (2021). Data Ethics of Power. In *Data Ethics of Power*. https://doi.org/10.4337/9781802203110

Hecht, G. (2009). *The Radiance of France, New Edition : Nuclear Power and National Identity after World War II*. MIT Press.

Hill, M. (2014). *The Public Policy Process.* 367.

Hoffman, L. W. (1990). Constructing Realities: An Art of Lenses. *Fam Proc*, *29*, 1–12. https://doi.org/10.1111/j.1545-5300.1990.00001.x

Jackson, R. (2021). The purpose of policy space for developing and developed countries in a changing global economic system. *Research in Globalization*, *3*. https://doi.org/10.1016/J.RESGLO.2021.100039

Jahn, T., Bergmann, M., & Keil, F. (2012). Transdisciplinarity: Between mainstreaming and marginalization. *Ecological Economics*, *79*, 1–10. https://doi.org/10.1016/j.ecolecon.2012.04.017

Jasanoff, S. (2016). Subjects of reason: goods, markets and competing imaginaries of global governance [Article]. *London Review of International Law*, *4*(3), 361–391. https://doi.org/10.1093/lril/lrw021

Jasanoff, S., & Kim, S.-H. (2015). *Dreamscapes of Modernity: Socio-technical Imaginaries and the fabrication of power*. University of Chicago Press.

Jasanoff, S., Kim, S.-H., & Sperling, S. (2004). *Sociotechnical Imaginaries and Science and Technology Policy: A Cross-National Comparison*.

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*. https://doi.org/10.1038/s42256-019-0088-2

Kingdon, J. W. (1995). *Agendas, alternatives, and public policies.* (2nd ed.) [Book]. HarperCollins College Publishers.

Kieti, J., Waema, T. M., Baumüller, H., Ndemo, E. B., & Omwansa, T. K. (2022). What really impedes the scaling out of digital services for agriculture? A Kenyan users'

perspective. *Smart Agricultural Technology*, *2*, 100034.

Klein, N. (2014). *This changes everything : capitalism vs. the climate* (First Simo) [Book]. Simon & Schuster.

Latour, B. (2011). Drawing Things Together. In *The Map Reader: Theories of Mapping Practice and Cartographic Representation* (pp. 65–72). John Wiley and Sons. https://doi.org/10.1002/9780470979587.ch9

Leach, M., Sterling, A., & Scoones, I. (2010). *DYNAMIC SUSTAINABILITIES: TECHNOLOGY, ENVIRONMENT, SOCIAL JUSTICE*. Earthscan in association with the Economic and Social Research Council (ESRC.

Legun, K., & Burch, K. (2021). Robot-ready: How apple producers are assembling in anticipation of new AI robotics. *Journal of Rural Studies*, *82*, 380–390. https://doi.org/10.1016/J.JRURSTUD.2021.01.032

Leonardi, P., & Rodriguez-Lluesma, C. (2012). Sociomateriality as a Lens for Design: Imbrication and the constitution of technology and organization. *Scandinavian Journal of Information Systems*, *24*(2). https://aisel.aisnet.org/sjis/vol24/iss2/4

Mclennan, S. J. (2015). *Information Technology for Development Techno-optimism or Information Imperialism: Paradoxes in Online Networking, Social Media and Development Techno-optimism or Information Imperialism: Paradoxes in Online Networking, Social Media and Development*. https://doi.org/10.1080/02681102.2015.1044490

Miller, B. (2021). Is Technology Value-Neutral? *Science Technology and Human Values*, *46*(1), 53–80. https://doi.org/10.1177/0162243919900965

Miller, T. R. (2020). Imaginaries of Sustainability: The Techno-Politics of Smart Cities. *Science as Culture*, *29*(3), 365–387. https://doi.org/10.1080/09505431.2019.1705273

Mol, A. (2002). *The body multiple : ontology in medical practice* [Book]. Duke University Press.

Moore, S. (2007). *Alternative Routes to the Sustainable City: Austin, Curitiba, and Frankfurt*. Lexington Books.

Ndaka, A. K. (2023). *Sustainable AI Techno-futures ? Exploring Socio-Technical*

Imaginaries of Agtech in Aotearoa New Zealand. Universty of Otago, New Zealand.

Angella Ndaka; Harriet Ratemo; Abbigail Oppong; Eucabeth Majiwa(2024). *AI Onto-norms and Gender Equality: Unveiling the Invisible Gender norms in Artificial Intelligence Ecosystems in the Context of Africa* in Trustworthy AI for Africa, edited by Damian Eke and Kutoma Wakunuma(In Press).

Ndaka, A., Lassou, P. J., Kan, K. A. S., & Fosso-Wamba, S. (2024). Toward response-able AI: A decolonial perspective to AI-enabled accounting systems in Africa. *Critical Perspectives on Accounting*, *99*, 102736.

Ndaka, A., & Majiwa, E. (2024). Knowledge co-production or epistemic injustice?: Attending to questions of power in transdisciplinary technology communities of practice. In *Building Communities of Practice in Higher Education* (pp. 106-130). Routledge.

Nobrega, C., & Varon, J. (2021). *Big Tech Goes Green (washing): Feminist Lenses to Unveil New Tools in the Master ' s Houses*. *2*, 1–17.

Okyere-manu, B. D. (2021). African Values, Ethics, and Technology. *African Values, Ethics, and Technology*, 1–14. https://doi.org/10.1007/978-3-030-70550-3

Robinson, S. C. (2020). Trust, transparency, and openness: How inclusion of cultural values shapes Nordic national public policy strategies for artificial intelligence (AI). *Technology in Society*, *63*(October). https://doi.org/10.1016/j.techsoc.2020.101421

Rosendahl, J., Zanella, M. A., Rist, S., & Weigelt, J. (2015). Scientists' situated knowledge: Strong objectivity in transdisciplinarity. *Futures*, *65*, 17–27. https://doi.org/10.1016/j.futures.2014.10.011

Ruttkamp-bloem, E. (2023). *Epistemic Just and Dynamic AI Ethics in Africa*. Springer International Publishing. https://doi.org/10.1007/978-3-031-08215-3

Sætra, H. S. (2021). AI in Context and the Sustainable Development Goals: Factoring in the Unsustainability of the Sociotechnical System [Article]. *Sustainability (Basel, Switzerland)*, *13*(4), 1738. https://doi.org/10.3390/su13041738

Saetra, H. S., Coeckelbergh, · Mark, & Danaher, · John. (2022). The AI ethicist's dilemma: fighting Big Tech by supporting Big Tech. *AI and Ethics*, *2*, 15–27. https://doi.org/10.1007/s43681-021-00123-7

Schiff, D. (2021). Out of the laboratory and into the classroom: the future of artificial intelligence in education [Article]. *AI & Society*, *36*(1), 331–348. https://doi.org/10.1007/s00146-020-01033-8

Schiff, D. (2022). Education for AI, not AI for Education: The Role of Education and Ethics in National AI Policy Strategies [Article]. *International Journal of Artificial Intelligence in Education*, *32*(3), 527–563. https://doi.org/10.1007/s40593-021-00270-2

Schiff, D., Rakova, B., Ayesh, A., Fanti, A., & Lennon, M. (2020). Principles to Practices for Responsible AI: Closing the Gap [Article]. *ArXiv.Org*. https://doi.org/10.48550/arxiv.2006.04707

Ulnicane, I., Knight, W., Leach, T., Stahl, B. C., & Wanjiku, W. G. (2021). Framing governance for a contested emerging technology:insights from AI policy. *Policy and Society*, *40*(2), 158–177. https://doi.org/10.1080/14494035.2020.1855800

White, B. (2015). Methods Vignettes: Sociotechnical Imaginaries. *STEPS Pathways to Sustainability*, *2009*, 1–12. https://steps-centre.org/pathways-methods-vignettes/methods-vignettes-sociotechnical-imaginaries

Wiek, A., Ness, B., Schweizer-Ries, P., Brand, F. S., & Farioli, F. (2012). From complex systems analysis to transformational change: A comparative appraisal of sustainability science projects. *Sustainability Science*, *7*(SUPPL. 1), 5–24. https://doi.org/10.1007/s11625-011-0148-y

Wilson, A. (2017). Techno-Optimism and Rational Superstition. *Techné: Research in Philosophy and Technology*, *21*(2/3), 342–362. https://doi.org/10.5840/TECHNE201711977

Zhang, D., Mishra, S., Brynjolfsson, E., Etchemendy, J., Ganguli, D., Grosz, B., Lyons, T., Manyika, J., Niebles, J. C., Sellitto, M., Shoham, Y., Clark, J., & Perrault, R. (2021). *2021-AI-Index-Report_Master.pdf*. AI Index Steering Committee, Human-Centered AI Institute, Stadford University. https://aiindex.stanford.edu/wp-content/uploads/2021/11/2021-AI-Index-Report_Master.pdf

Zhang, Y. (2014). The Standard of "Civilisation" Redux: Towards the Expansion of International Society 3.0? *Journal of International Studies*, *42*(3), 674–696. https://doi.org/10.1177/0305829814539574

Schiff, D. Education for AI, *not* AI for Education: The Role of Education and Ethics in National AI Policy Strategies. *Int J Artif Intell Educ* **32**, 527–563 (2022). https://doi-org.ezproxy.otago.ac.nz/10.1007/s40593-021-00270-2