

## **Era or Error of Transformation? Assessing Afrocentric Attributes to Digitalization** **Bruce Mutsvairo, Massimo Ragnedda and Kristin Skare Orgeret**

### **Introduction: Demystifying Digital Dilemmas in Africa**

This special issue is indeed special. When the idea to guest edit this issue was mooted, none of us had heard of COVID-19. After organizing what turned out to be a successful pre-conference, buoyed by excellent paper presentations at the IAMCR meet in Madrid in 2019, we preselected papers for this themed issue expecting nothing but a normal submission process followed by strenuous let alone painstaking peer-reviewing of manuscripts that is traditionally associated with a journal of this caliber. We were wrong. In what became a fathomable but cumbersome experience, scholar after scholar wrote to request deadline-day extensions just as getting reviewers to commit to assessing papers became conscientiously convoluted. While the global pandemic undoubtedly slowed the process, we were able to prepare this issue on time thanks largely to the support we got from the journal's editorial team along with thoughtful, thorough, constructive comments and suggestions from the reviewers to whom we remain incessantly grateful.

Twenty-three years have passed since the first issue of *Information Communication and Society* was published. Over the years, this journal has become one of the leading, top-ranked media and communication journals around. It is for this reason that we feel honored to have been selected to edit the journal's first special issue exclusively dedicated to the African continent. The timing would not have been better. Long considered economically and socially underdeveloped compared with the rest of the world, Africa has in recent years emerged as an important global player in many respects, helped in part by a set of factors including rapid population growth that is expected to reach 1.7 billion inhabitants by 2030 and 2.5 billion by 2050 (Dietz, 2017), an expanding urbanization and a growing, tech-savvy youth that is adopting ubiquitous technologies to demand transparency from its political leaders in a bid to improve their lives and communities (Mutsvairo and Ragnedda, 2019). In spite of the seemingly endless prospects, ranging from abundant natural resources to fresh democratic transitions, albeit frequently fragile, a series of challenges remain firmly in place and this special issue will not only highlight opportunities associated with digital communications but it also assesses the implications of expeditious technological changes that have dominated Africa's online space over the last few years.

### **Defining, Disambiguating Digitization, Digitalization and Digital Transformation**

The need to disambiguate the concepts of digitization and digitalization is, as it has often been emphasized, "more than a semantic exercise" (Bloomberg 2018; Chapco-Wade 2018), as there is clearly an analytical value in explicitly making a clear distinction between the two terms. Most scholars agree on the basic distinction. Whereas digitization is considered the "**process of converting information from a physical format to digital one**" Hapon (2020), digitalization is seen as the use of "digital technologies and digitized data to impact how work gets done, create and harvest value in new ways" (Chapco-Wade, 2018). Brennen and Kreiss (2014) posit that digitalization concerns the positioning and repositioning of spheres of social life within the domains of digital communication and media infrastructures.

Digital transformation, on the other hand, requires a broader adoption of digital technology and cultural change. It is dependent on both technology and people, (Nadkarni and Prügl, 2020) yet conversely, it also is not entirely about technology (Tabrizi et. al, 2019). Furthermore, digital transformation is concerned with capitalizing online technologies to establish and revitalize new business processes, innovations, structures, communication lines and ultimately, cultures. Hence, whereas digitization and digitalization are essentially about technology, digital transformation seeks to establish news ways of serving people. All processes – digitalization, digitization and digital transformation - are adequately represented in Africa (Ndemo and Weiss, 2017) albeit with varying degrees and levels of affordances, adoptability and acceptability as not everyone has openly embraced these technologies. For example, the Botswana bushmen's resentment of

modern ways of living preferring instead to continue their traditional lifestyle as hunter-gatherers is widely known. Yet as more and more people continue to embrace and afford technological access across many nations in Africa, it has become equally important to critically assess the transformative capacity of digital communications media and identify both impending opportunities and challenges associated with the digital era. Seeing the societal change processes encouraged and generated by the arrival of digital technologies as multi-dimensional processes, this special issue aims to make a better sense of Africa's digital engagements by shedding light on the impact these technologies are making across the continent.

This issue is intended to throw a rare but critical light upon the influence of digital technologies by examining how they could be changing communities as well as the everyday lives of Africans. It also seeks to understand the prospects and implications of these technological changes for nation-states within the wider geo-political context of post-colonial relations within and beyond Africa. The prospects of digital dividends in a continent long dominated by digital divides have largely been heralded by the presence of an emerging digital ecosystem that not only promises to transform Africa's socio-political and economic potential but also brings with it several challenges including the legacies of digital coloniality and rapacious inequalities that go beyond the online spaces. From innovation hubs to digital ventures such as Google's Artificial Intelligence lab in Ghana, technological disruption is taking center stage in many forms across the continent. It remains to be seen though what the real capacity of digital innovations could be in a region of the world where online infrastructures are pervasively in disarray, digital skills are in short supply while conflicts particularly in fragile regions, such as the Sahel and Horn of Africa remain rampant. It is important to ask if indeed a "digital revolution" is taking place in Africa and if so, what form, shape or size it's manifesting itself in and whether empirically-driven evidence to support such claims can be uncovered and verified? It is equally important to know how Africans are benefiting from the perceived technological renaissance?

### **African Digital Platforms: Epistemological and Ontological debates**

There are no obvious answers to these questions but perhaps it's important to start with technological innovations, that are being heralded as Africa's new organs of optimism on the political, economic and social fronts. In an article, highly critical of new urbanisms in Africa, Van den Broeck (2017) uses Kenya's Konza Technopolis, a planned massive technology hub south of the capital Nairobi, to highlight potential inequalities associated with this ambitious technocentric project. He opposes the "materiality of the digital" linking it "with notions of swiftness and speed" because "it becomes highly opaque and sometimes even invisible" (Van den Broeck 2017: 219) leading to what he calls "ontological uncertainty." This, he postulates, has dominated the much-hyped *Silicon savannah*, neglecting noticeable calamities associated with these humongous urban developments in Africa, including inequality, exclusion, insecurity and vulnerability of the locals.

According to Johari (2014) conflicts have also emerged between three local counties, all of whom are seeking to cash in on tax revenues once the ambitious Kenyan project is complete. While adoption of digital technologies along with rapid urbanization currently manifesting in Africa have both created some excitement among many observers, it is important to note, they have also come at a price as unemployment rates remain high in urban centers (Guneralp et al, 2017), digital technologies remain way beyond reach for many Africans (Mutsvairo and Ragnedda, 2019) while practical problems such as water and electricity deficits have engulfed several African cities including Johannesburg and Cape Town as supply falls behind demand.

Neo-Marxist scholar Feenberg (2005:49) has probably offered one of the most robust and unrivaled critiques of technology in present-day society. Technology may benefit societies, he argues, but ultimately it symbolizes power, noting that "technological power is the principle

form of power” in a given society. Better still, Betancourt (2016)’s critique of digital capitalism makes a universal appeal for a formidable appraisal of illusions and fantasies associated with digital technologies. For him, technological advancements are hegemonic in nature and represent materiality and instrumentality, seeking to reinforce capitalist coloniality. An abundant range of scholarship has further opposed the glorification of technology challenging its links to materiality (Jeronimo, Garcia and Mitcham, 2013) or furthering inequalities (Robinson et al, 2015). We therefore need to go beyond the touted fanfare and hypothesized beliefs that Africans stand to benefit from the so-called information revolution and pose difficult and uncomfortable questions about, for instance, Silicon Valley’s investment drive in Africa as North America-headquartered investors are said to be accounting for 42% of all African venture capital deals over the last five years (Madowo, 2020). Are Western technological investments in Africa intended to benefit the locals? It would be totally foolhardy to question the potential that technology brings to Africa. However, we can at the very least be cynical to interrogate whether potential alone is enough particularly when it is touted along the lines of philanthropy?

Digital technologies create new ontological parameters (Russo, 2018). Citing Habermas, Radder (2012) posits that technology is closely associated with science, which leaves it correlated with the positivism school of thought, defined by Kitchin (2006: 23) as a “set of philosophical approaches that seeks to apply scientific principles and methods, drawn from the natural and hard sciences, to social phenomena in order to explain them.” Africa’s knowledge base is significantly diverse and much of it cannot be “googled.” There therefore is a need to embrace multiple methodological processes beyond the positivist paradigm to get an all-encompassing appreciation of Africa’s social realities, some of which are largely removed from the digital world (Moyo and Mutsvairo, 2018). The expansion of digitalized technologies should, we argue, support and not suppress existing indigenous knowledge mechanisms that for centuries have become the force of its emancipatory worldview using everything positivists refuse to engage with, from observations to non-empirical inquiry informed by African experiences.

### **Theorizing Digitization in Africa**

Scholars and policy makers have often discussed whether or not, African economic and social development can leapfrog other countries, improving its position by adopting broadband and mobile technologies. To analyze and reflect upon the impact of new technologies of communication on African societies, we need to look at the wider economic and social contexts in which these new technologies are entrenched in. They are, indeed, shaped by different, and often conflicting, forces. Therefore, we need to disentangle these conflicting imperatives and dynamics if we want to fully grasp the impact of digitization and digitalization in Africa. While not fully embracing the techno-determinist approach, we can see how the advent of digital media is changing the economic, cultural, social and even political landscapes of Africa (Mutsvairo and Ragnedda, 2019; Nothias, 2020; Mutsvairo and Ronning, 2020). Evidently, this digital revolution is happening at different pace and speed, since the African continent is not a monolith as discerned in this special issue.

More specifically, when reflecting upon the impact of the “digital revolution,” we need to take into consideration the wider historical and socio-economic contexts it manifests itself in Africa. Rifkin (2001) suggests that Africa has not fully benefited from the third industrial revolution. Will it be different with the advent of the so-called fourth industrial revolution (4IR)? How will this new digital and technological “revolution” - made from the amalgamation of artificial intelligence, the Internet of Things (IoT), blockchain, 3D printing, cloud computing among others - differ from the previous one? So far, according to ITU (2017a) and World Bank (2000), it looks like Africa is lagging behind in the “digital revolution” in terms of technological access, use and preparedness. The latest digital technologies, and in particular Artificial Intelligence and Blockchain, might help in addressing some of the economic and social challenges in Africa, by enhancing structural

transformation and economic growth (Frehund and Weinhold 2002; Choi and Yi 2009), promoting social relationships (Lévy, 1997), and encouraging both collective action (Frantzich, 1999; Diani, 2000) and new democratic, participatory and open spaces (Sproull and Kiesler, 1991; Kapor, 1993). However, this might be an over-optimistic approach that feeds into an already discarded techno-evangelist approach (Negroponte 1995; Postrel 1998) which prefers over-emphasizing the positive aspects of the digital and technological “revolution.” Several scholars, indeed, pointed out how the positive impact of digital technologies, have been overstated by the economic elite and the media (Murdock & Golding, 2004; Warschauer, 2004; Gunkel, 2003), thus giving the rise to over optimistic approaches. Bastani, (2019) and Mason (2015), for instance, highlight how the advent of digital technologies has the emancipatory potentiality to create a post-capitalist society. By contrast, Ford (2015), among the others, parades a darker future, where AI creates an over surveilled society in which human relations became somehow irrelevant. Africa should thus be wary of these emerging scholarly concerns.

We need to keep in mind these conflicting ideas and approaches when examining the impact of digital technologies in a fast-growing continent such as Africa. Above all, theorizing and analyzing the impact the digitalization might have on Africa, we need first to better frame and understand the historical context. We should not forget how Western countries, with more than 400 years of technological innovation in the communication field - since the Gutenberg revolution - have developed the capacity to embed communication infrastructures and digital industries into their society (Barber 2006; Mattelart 2003). This way, Western countries have established themselves as “center” through which they control peripheries both via electronic (McPhail 1981; Said 2001) and cultural imperialism (Tomlinson 1991). The Western-centric interests and ideologies are influencing the digital agenda in Africa, driving the digital revolution and limiting the emancipatory potentiality of technologies. Furthermore, the so-called digital revolution has been laden with noteworthy challenges, including lack of infrastructures (ITU, 2017b), technological divides (van Dijk, 2020) and rising digital inequalities (Robinson et al, 2020). In fact, inequalities in accessing and using ICTs is quite evident in Africa, with some areas - particularly in Eastern Africa - where people are totally excluded from accessing the digital arena are high, compared to Europe or North America (ITU 2020). According to the Internet World Stats (2020), the overall Internet penetration in Africa is less than 40%, below the world average (58.8%) and far below from Europe (87.7%) and North America (95%). Therefore, there is a clear digital gap in terms of Internet penetration between Africa, as a continent, and the most technologically advanced countries. Furthermore, strong inequalities persist within the continent, with some countries as Kenya enjoying a much higher Internet penetration (87.2%) compared with Chad (6.3%). This example emblematically represents the evident inequalities, in terms of Internet adoption, between countries within the variegated and complex African continent.

Moreover, moving from a macro to a micro and meso-level analysis, we see how not only some geographical areas (both between countries and within countries) have a higher Internet penetration, but also within the same area some social groups, more than others, have access to and use ICTs efficiently and effectively to improve their life chances. Therefore, digital inequalities are not only related to different rates of access to ICTs - first level of digital divide - but also how digital technologies are used - second level of digital divide - and which benefits users get from their uses - third level of digital divide (Ragnedda 2017). In fact, not everybody accesses and uses in the same way the possibilities offered by the advent of digital technologies, giving the rise to the digital underclass (Ragnedda 2020). They are in an underprivileged position in society, since they are excluded or have a limited access to a world where information, resources and opportunities are generated and shared. Therefore, given the (in)capacity to use digital media and ICTs to improve life chances and not to get damaged by them (Scheerder et al. 2019), it is necessary to understand how demographic, cultural and socio-economic inequalities influence the way Africans access, use and benefit from ICTs. In this vein, this special issue sheds light into the

persistence of digital inequalities in Africa, by opening up a discussion over the process of digitalization and its impact on macro and micro levels.

### **Digital Transformations in Africa**

Africa, with its (at least) 54 countries, evidently, is far from being a monolithic continent. It hosts some of the most unequal countries in the world with the highest recorded level of income inequality. While many countries in the sub-Saharan region have registered remarkable economic performance over the last years, lifting millions out of extreme poverty and making healthcare and education available to larger shares of the populations, other countries have lagged behind. Also, digital technologies have entered different regions and countries at different periods of times and at a different pace.

As a continent, Africa was last in embracing the digital economy. The Boston Consulting Group (BCG) only included the continent in their analysis of the global digital maturity as late as 2020 (Dannouni et al., 2020). Nevertheless, it is frequently argued that Africa's late arrival to the digital economy may come with some competitive advantage as it benefits from mistakes already made elsewhere (Nash, 2015; Osiakwan, 2017). Countries or regions can make a quick jump also known as 'leapfrogging' by harnessing technological innovation (Steinmueller, 2001:194). The penetration of mobile phones into the African continent is a powerful example of digital transformation. An often-cited illustration being how the mobile phone allowed African societies to 'leapfrog' over the fixed line stage of telecommunication, making mobile ownership as common in countries such as South Africa and Nigeria as it is in the United States (Pew, 2015). This development may thumb its nose at the old school Western modernization theorists of the last century, such as Rostow (1971), who argued that developing countries had to follow the *exact* definite stages of the developed countries' technological development track in order to succeed. The modernization paradigm embraced a directional, mechanistic, deterministic and positive view of development, where the stages of growth were seen as universal and irreversible. Leapfrogging was out of the question.

Furthermore, as already noted, the African continent's population is young, in fact younger than that of any other continent, and that, combined with a customary lack of infrastructure, has forced creativity and originality and has led to innovative solutions (see e.g. Ndemo and Weiss, 2017). Africa is unleashing innovation by combining mobile and web technology (Osiakwan, 2017) and the penetration of the mobile phone all over the continent is a powerful example of how media technologies are adopted and adapted to suit the very specific context into which they are appropriated (Mutsvairo, 2016). However, this digital transformation was not necessarily expected. Bruijn and Brinkman (2016) show how, initially mobile phone companies regarded markets in Africa as a risk investment. Scholars first described "the mobile phone revolution" in Africa (e.g. Etzo and Collender, 2010), focusing on the impact of for instance mobile payments on the success and growth of micro-businesses, and then "the smartphone revolution" (e.g. James, 2020), bringing the Internet "to the bottom of the pyramid." As the smart phone has Internet connectivity it is found to stimulate one of the most important technological revolutions in human history with a lot of potential implications for African economic development (Aker and Mbiti, 2020).

As increasingly more people got access to Internet, the question of how social media is transforming political engagement and mobilization as well as the possible role of social media in the struggle for democracy became core (Dwyer and Molony, 2019; Mutsvairo, 2016; Mutsvairo and Rønning, 2020). Do digital transformations drive the African continent towards democratic change? As Bruijn and Brinkman have shown (2016), the mobile phone can also become part of a regime that controls people and their everyday lives. Oppressive states can profit from the digital transformation, and as a result the possibility of escaping state control has diminished (Ayalew, 2019). Questions of control and censorship, state policing and surveillance on political

participation are all central to a discussion of the role of social media in promoting or denting democratization. There are many ways to control and censor the use of social media and some scholars argue that Internet control has become the norm in Africa (Mare, 2020).

On the pretext of combatting so-called 'fake news', disinformation and hate speech, several countries have in recent years adopted new laws with vague and draconian provisions that can easily be used to threaten journalists (RSF, 2020). Scholars agree that "fake news" has always existed, but that the advent of digital media technologies has amplified the challenge, stressing the fact that "fake news" as a phenomenon in Africa also pre-dates the era of online news (e.g. Rodney-Gumede, 2018; Mare et al., 2019; Mutsvairo and Bebawi, 2019). Internet shutdowns are often justified by narratives of national security or economic growth by the suppressing governments, whereas individuals' self-expressions and cultural engagement constitute a competing narrative (Ayalew, 2019). Regarding individuals' self-expression, earlier studies have shown how disparities in access to social media often overlap with broader issues of socio-economic gender inequalities. Several African countries perform poorly in terms of women's access to social media (Bailur et al., 2018). Social media are often expected to facilitate more equal participation in civic engagement across genders and countries, and an interesting question here is whether technological transformations in Africa helped issues related to gender and patriarchy?

On the one hand, social media have provided a new powerful platform to be used to negotiate rights and possibilities. An example is the African LGBT community as a social movement and the opportunities and challenges faced by online activists fighting for LGBT equality (Currier and Moureau, 2016). Social media have indeed changed how audiences engage with information, authorities and institutions of traditional power on the continent. Many gender-based activists are using digital tools to gain attention and facilitate social changes. An example of how social media may provide a platform to negotiate rights, is the digital Pads4Girls campaign, which set out to provide free sanitary towels to girls in Uganda in March 2019 (Namasinga and Orgeret, 2020a). The campaign was born following the Ugandan government's failure to honor a presidential election campaign promise of supplying sanitary towels. Having initially aimed to collect one million pads, the campaign collected over 10 million pads and reached out to more than 2,000 girls. Academic and activist Stella Nyanzi started the Pads4Girls campaign on Facebook to rally women and citizenry to demand that government fulfil its election campaign promise. The campaign aimed to show the leadership of Uganda that menstrual hygiene materials could be supplied if prioritized and to demolish mainstream oppressive narratives that dominate the legacy media and formal political discussions. The campaign antagonized powerful figures in government, participated in removing taboos, challenged patriarchal stereotypes, but also eventually led to Stella Nyanzi's imprisonment (Namasinga and Orgeret, 2020a; 2020b).

While many have taken an optimistic stand to the potential of digital media to strengthen issues related to gender and patriarchy, there are also reports on digital media simply reinforcing what is already there. Through a study of 10 countries across, Africa, Asia, America and Europe, Brandtzaeg (2015) finds that the gender differences in civic engagement that exist offline to a large degree are replicated and reinforced on social media. Perhaps even more worrying is the increasing numbers of reports on digital media showing how women are more targeted for their advocacy (Amnesty International, 2018). For example, recent reports suggest that women in Nigeria and South Africa face systemic online trolling often accompanied by direct physical intimidation (Dark, 2019).

Within the field of safety of journalists, we see how an increasing number of reporters are attacked, and how a rising number of the journalists killed are reporters whose primary platforms are Internet-based (Henrichsen et al 2015). Studies show that female journalists experience approximately three times as many abusive comments on Twitter than their male counterparts. For

some female journalists, online threats of rape and sexual violence have become part of everyday life; others experience severe sexual harassment and intimidation (Mijatović, 2015). Julie Posetti has followed the development globally and argues that there is an ongoing war against women at the intersection of converging digital age threats (2021). She describes it as “a new frontline in journalism safety – one where female journalists sit at the epicentre of risk”.

The digital, psychological and physical safety threats confronting women in journalism are overlapping, converging, and inseparable. Where and when they intersect, they can be terrifying. They are also potentially deadly. This scourge threatens women journalists around the world – across a range of platforms and digital communities (Posetti, 2021).

Posetti (2021) describes how in South Africa, prominent editor Ferial Haffajee was targeted in a campaign of online violence that escalated between 2017–2019. A wealthy family accused of capturing key state enterprises and politicians in South Africa in the scandal known as #GuptaLeaks, hired UK Public Relations firm Bell Pottinger to devise an elaborate propaganda campaign which deployed online violence against women journalists including Ferial Haffajee. It spread its messages via a ‘fake news’ empire involving websites and a paid Twitter army which targeted journalists, business people and politicians with abusive, hostile messages and photoshopped images, designed to humiliate and discredit their critics. Whereas digital technologies have resulted in new arenas for raising under-communicated issues and combatting oppression in Africa, the transformations have also opened new forms of digital harassment, online violence, censorship and control.

### **Article Summaries**

Research focusing on the political impact of social media in Africa has been springing up over the years but very few have sought to investigate the power of social networks to show how tech-based strategies impact ingroup and outgroup political engagement. Téwodros W. Workneh’s timely study on the use of social media as a key tool for political organizing in Ethiopia adopts collective identity and moral outrage as theoretical lens, masterminding a mixed method manifesto of online surveys and interviews to show social media’s increasingly influential role in mobilizing marginalized Ethiopian youths to catalyze change. [Toks Dele Oyedemi](#) follows next with a compelling theoretical exposition of electronic coloniality, which he uses to examine the political economy of Google’s ‘Google Station’ in Nigeria to seek a deeper understanding of a term that’s been around since the 1970s but has lately attracted further scrutiny thanks to the expansion of market globalization and communication technologies. Oyedemi applies a decolonial perspective to analyze Africa’s technological quagmires, arguing against embracing foreign and ‘free’ packages of Internet access. Hayes Mawindi Mabweazara then deploys qualitative interviews stretching an eight-year period to rethink the notion of the digital divide in one of the few papers within the African context to apply the phenomenon to journalism practice, giving a critical account of the social, cultural and professional values of mobile phones to not only advance new knowledge in the field but also expound extended epistemologies of African journalism.

Next up, Saifuddin Ahmed and Dani Madrid-Morales delve into a largely under-researched area in Africa by questioning whether political engagements on social media contribute to gender equality drawing up research in South Africa, Kenya and Nigeria and concluding, thanks to a representative survey data, that a longstanding gender divide exists in online political deliberations. Florence Madenga follows next, making an attempt to understand why state censorship and mass surveillance have been the bedrock of digital authoritarianism in Zimbabwe, where its government faces accusations of using Internet controls and cybersecurity measures to stifle storytelling and journalism before Akintola Olaniyan and Ufuoma Akpojivi apply Habermasian notion of the public sphere and semi-structured interviews with 12 media

practitioners to examine the impact of regulatory frameworks on Nigeria's mediacentric and democratic institutions. Norbert Wildermuth then zooms in on two of the 30 interviews he conducted in rural Kenya as well as a baseline survey to discover the differences between legacy media and new media in the eyes of citizens of the East African nation, further questioning the presence of bias in research that focuses on digital media in Africa particularly in relation to deterministic notions on *who is left behind at the bottom of the digital media pyramid*. In another empirical study focusing on a rural community, this time in South Africa, Lorenzo Dalvit and Tatenda Chatikobo demonstrate through their qualitative study the importance of social-cultural and economic status, in igniting differences in digital experiences between the downtrodden and the elite.

## Conclusion

All articles featured in this issue present new knowledge, helping us comprehend the transformative capacities and incapacities of digital communications media in Africa. Analyzing possibilities and challenges to digitalization through perspectives such as digital literacy, human rights, civic engagement, democratic governance and technological and business innovation, these series of articles show why the broader discourses and intersections between new technologies and historical trajectories should be further developed and deconstructed. Read together, the articles emphasize and demonstrate the need for more diverse scholarly contributions questioning how and why digitalization and online technologies continue to mediate between actual people in specific areas of time and cultures, as well as in specific geographical, political, social and gendered spaces. This special themed issue has showcased and discussed at length aspects of digitalization and digitization of our times questioning, discussing and providing inspirational and intriguing answers to what digital transformation means in an African context at a structural level as well as embedded in the everyday lives of people.

## Bibliography

- Amnesty International. (2018). Toxic Twitter – A Toxic place for Women. Retrieved from <https://www.amnesty.org/en/latest/research/2018/03/online-violence-against-women-chapter-1/>
- Ayalew, Y. E. (2019). The Internet shutdown muzzle(s) freedom of expression in Ethiopia: Competing narratives. *Information & Communications Technology Law*, 28(2), 208-224.
- Bailur, S et al (eds) (2018) Gender, mobile and development: the theory and practice of empowerment. *Information Technologies, International Development* 14 96–104.
- Barber, J.T. (2006). *The Black Digital Elite: African American Leaders of the Information Revolution*. Santa Barbara, California: Greenwood Publishing Group
- Betancourt M (2016). *The Critique of Digital Capitalism: An Analysis of the Political Economy of Digital Culture and Technology*. NY: Punctum Books
- Bastani, A. (2019). *Fully automated luxury communism*. London:Verso Books. .
- Brandtzaeg, P. B. (2017). Facebook is no “Great equalizer”: A big data approach to gender differences in civic engagement across countries. *Social Science Computer Review*, 35(1), 103–125.
- Bruijn de, M, and Brinkman, I. (2018). Mobile Phone Communication in the Mobile Margins of Africa: The ‘Communication Revolution’ Evaluated from Below. B. Mutsvairo (ed.)*The Palgrave Handbook of Media and Communication Research in Africa*. 225–241.
- Choi, C. and Myung Hoon Yi (2009). The effect of the internet on economic growth: evidence from cross-country panel data. *Economic Letters* 105, 39-41.
- Currier, A.and Moureau,J. (2016) in B. Mutsvairo (ed.) *Digital activism in the social media era. Critical reflections on emerging trends in sub-Saharan Africa*. Palgrave Macmillan. 231–247.
- Dark, Shayera (2019) The digital gender gap means African female activists get disproportionately trolled, *QuarzAfrica*. Retrieved from <https://qz.com/africa/1567594/african-women-activists-attacked-more-often-by-trolls/>



- Diani, M. (2000) Social movement networks virtual and real, *Information, Communication & Society*, 3:3, 386-401, DOI: 10.1080/13691180051033333.
- van Dijk, J (2020), *The digital divide*, Cambridge, UK: Polity.
- Dwyer, M., & Molony, T. (Eds.). (2019). *Social media and politics in Africa*. London: Zed Books.
- Etzo, S., and G. Collender. (2010). The Mobile Phone “Revolution” in Africa: Rhetoric or Reality. *African Affairs* 109 (437): 659–68.
- Feenberd A (2005). Critical Theory of Technology: An Overview. *Tailoring Biotechnologies*. 1 (1) 47-64.
- Ford, M. (2015) *Rise of the Robots: Technology and the Threat of a Jobless Future*, Basic Books.
- Frantzich S E (1999) *Citizen democracy: political activists in a cynical age*. New York: Rowman and Littlefield Publishers, Inc.
- Frehund, C., Weinhold, D., 2004. The effect of the Internet on international trade. *Journal of International Economics* 62 (1) 171-189.
- Gunkel, D. J. (2003). Second Thoughts: Toward a Critique of the Digital Divide. *New Media Society*, 5 (4), 499-522.
- Hapon, M. (2020). What Is the Difference Between Digitization, Digitalization and Digital Transformation. Retrieved from <https://www.netguru.com/blog/digitization-and-digitalization>
- ITU (2017b), *Bridging the digital Innovation divide: A toolkit for strengthening Ict centric ecosystem*, Geneva: International Telecommunication Union.
- ITU (2017a), International Telecommunications Union’s Information and Communication Technology Development Index (IDI Index) <https://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2017/methodology.aspx>
- ITU (2020). Handbook for the collection of administrative data on telecommunications/ICT 2020 edition. ITU Publication Production Service (PUBL). Retrieved from [https://www.itu.int/en/ITU-D/Statistics/Documents/publications/handbook/2020/ITUHandbookTelecomAdminData2020\\_E.pdf](https://www.itu.int/en/ITU-D/Statistics/Documents/publications/handbook/2020/ITUHandbookTelecomAdminData2020_E.pdf)
- James, J. (2020). The smart feature phone revolution in developing countries. *The information society*.36 (4) 226-235.
- Jeronimo H, Garcia J and Mitcham, C (2013). Jacques Ellul and the Technological Society in the 21st Century. Dordrecht: Springer.
- Kapor M (1993) *Where is the digital highway really heading?* Wired 94: 53-59.
- Kitchin, R (2006) Positivist geography and spatial science. In: Aitken, S, Valentine, G (eds) *Approaches in Human Geography*, London: Sage. 20–29
- Lévy P (1997) *Collective intelligence: Mankind’s emerging world in cyberspace*. New York: Plenum Trade.
- Madowo, L. (2020). Silicon Valley has deep pockets for African startups – if you’re not African. *The Guardian*. Retrieved from <https://www.theguardian.com/business/2020/jul/17/african-businesses-black-entrepreneurs-us-investors>
- Mare, A., Mabweazara, H.H; Moyo, D. (2019). Fake News and Cyber-propaganda in Sub-Saharan Africa: Recentering the Research Agenda. *African Journalism Studies* 40 (4) 1-12.
- Mason, P. (2016) *Postcapitalism: A guide to our future*. Macmillan.
- Mattelart, A. (2003), *The Information Society. An Introduction*. London: Sage.
- McPhail, T.L. (1981). *Electronic Colonialism: the Future of International Broadcasting and Communication*. London: Sage Publications.
- Moyo, L and Mutsvairo B. (2018). Can the Subaltern think? The Decolonial Turn in Media Research in Africa. In Bruce Mutsvairo. *Palgrave Handbook for Media and Communication Research in a Africa*. (ed) London: Palgrave Macmillan 26-40.
- Murdock, G., & Golding, P. (2004). Dismantling The Digital Divide: Rethinking The Dynamics of Participation and Exclusion. In A. Calabrese, & C. Sparks, *Toward A Political Economy of*

- Culture: Capitalism and Communication in the Twenty First Century (pp. 244-260). Lanham: Rowman & Littlefield Publishers Inc.
- Mutsvairo B and Ronning H (2020). The Janus face of Social Media and Democracy? Reflections on Africa. *Media, Culture & Society* 42 (3) 317–328.
- Mutsvairo B and Ragnedda M. (2019). Mapping the Digital Divide in Africa: A Mediated Analysis. Eds. Amsterdam: Amsterdam University Press
- Mutsvairo B and Ragnedda M (2019). Does Digital Exclusion Deter Social Media’s Democratizing Capacity? New Evidence from African Experiences. *New Global Studies*. 13 (3) 357-364
- Mutsvairo, B and Bebawi S. (2019). Journalism educators, regulatory realities, and pedagogical predicaments of the ‘Fake News’ era: a comparative perspective of the Middle East and Africa. *Journalism and Mass Communication Educator* 74 (2): 143–157.
- Mutsvairo, B. (Ed.) (2016). *Digital activism in the social media era. Critical reflections on emerging trends in sub-Saharan Africa*. Palgrave Macmillan.
- Nadkarni, S., Prügl, R. Digital transformation: a review, synthesis and opportunities for future research. *Manag Rev Q* (2020). <https://doi.org/10.1007/s11301-020-00185-7>
- Namasinga, F. and Orgeret, K.S. (2020a) Women and election activism in Uganda. The Pads4Girls Campaign. In M.N. Nkosi and W. Mano, W (Eds.). *Social Media and Elections in Africa, Volume 2*. Palgrave Macmillan. 31-58.
- Namasinga, F. and Orgeret, K.S. (2020b) Activism as political action in Uganda: The role of social media. *Journal of African Media Studies*. 12 (3) 283–300.
- Negroponte, N. (1995) *Being Digital*, Vintage, USA.
- Ndemo, B. and Weiss, T. (2017) Making sense of Africa’s emerging digital Transformation and its Many Futures. *Africa Journal of Management* 3(3-4) 328–347
- Nothias T. (2020). Access granted: Facebook’s free basics in Africa. *Media, Culture & Society*. 42 (3) 329–348.
- Osiakwan, E.M.K (2017) *Digital Kenya*. Palgrave Studies of Entrepreneurship in Africa.
- Posetti J. (2021). The New Frontline: Women Journalists at the Intersection of Converging Digital Age Threats in Orgeret. K.S (ed) *Peace and Conflict reporting*. London: Routledge.
- Postrel, V. (1998) *The Future and Its Enemies. The Growing Conflict Over Creativity, Enterprise, and Progress*, Free Press, New York.
- Radder, H (2012). Science and Technology: Positivism and Critique. In Jan Kyrre Berg Olsen Friis, Stig Andur Pedersen & Vincent F. Hendricks (eds.). *A Companion to the Philosophy of Technology*. London: Wiley-Blackwell.
- Ragnedda, M. (2017). *The third Digital Divide. A weberian approach to digital inequalities*. London: Routledge.
- Ragnedda, M. (2020), *Enhancing Digital Equity: Connecting the Digital Underclass*. Palgrave.
- Rodney-Gumede, Y. (2018). Fake It till You Make It: The Role, Impact and Consequences of Fake News. In Perspectives on Political Communication in Africa. In B. Mutsvairo and B. Karam (eds). *Perspectives on Participatory Political Communication in Africa*. London: Palgrave Macmillan. 203–219.
- Rifkin, J. (2001), *The Third Industrial Revolution; How Lateral Power is Transforming Energy, the Economy and the world*. New York: Palgrave Macmillan.
- Robinson L, Cotton S, Ono H, Quan-Haase A, Mesch G, Chen W, Schulz J, Hale T, Stern M (2015). Digital inequalities and why they matter. *Information, Communication & Society*. 18 (5) 569-582
- Robinson, L., Schulz, J., Dunn, SH. Ragnedda M., et al. (2020). Digital inequalities 3.0: Emergent inequalities in the information age. *First Monday*, 25(7): July 2020, Retrieved from <https://firstmonday.org/ojs/index.php/fm/article/download/10844/9562>.
- Rostow, W.W. (1971) *Politics and the Stages of Growth*. Cambridge University Press.
- RSF (2020) Reporters without borders Africa report. Retrieved from: <https://rsf.org/en/africa>

- Russo, F. (2018). Digital Technologies, Ethical Questions, and the Need of an Informational Framework *Philosophy & Technology* 31 (4) 655–667
- Said, E. W. (2001). *Power, Politics, and Culture; Interviews with Edward W. Said*. New York: Knopf Doubleday Publishing Group.
- Savic D. (2019). From Digitization, Through Digitalization, to Digital Transformation. *Online Searcher*. 43 (1) 36-39.
- Steinmueller, W.E. (2001) ICTs and the possibilities for leapfrogging bz developing countries. *International Labour Review*. 140(2), 193-210.
- Scheerder, Anique J. van Deursen Alexander J. A. M. & van Dijk Jan A. G. M. (2019) Negative outcomes of Internet use: A qualitative analysis in the homes of families with different educational backgrounds, *The Information Society*, 35:5, 286-298, DOI: [10.1080/01972243.2019.1649774](https://doi.org/10.1080/01972243.2019.1649774)
- Sproull, LS and Kiesler SB (1991). *Connections: New ways of working in the networked organization*. Cambridge, MA: MIT Press.
- Tabrizi B, Lam E, Girard K, and Irvin V. (2019). Digital Transformation Is Not About Technology. *Harvard Business Review*. Retrieved from <https://hbr.org/2019/03/digital-transformation-is-not-about-technology>
- Tomlinson, John. 1991. *Cultural Imperialism. A Critical Introduction*. Baltimore: Johns Hopkins University Press.
- Van den Broeck J. (2017). ‘We are analogue in a digital world’: an anthropological exploration of ontologies and uncertainties around the proposed Konza Techno City near Nairobi, Kenya, *Critical African Studies* 9 (2) 210-225, DOI: 10.1080/21681392.2017.1323302
- Warschauer, M. (2004). *Technology And Social Inclusion: Rethinking The Digital Divide*. Cambridge, MA: MIT Press.
- World Bank (2000), *Can Africa Claim the 21st Century?* Washington, D.C.: World Bank.