

A Legal Analysis of the Regulation of Information and Communications Technologies to Promote Digital Inclusion for the Poor and Low-Income Earners in South Africa¹

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Abstract

Digital inclusion involves the provision of equitable access to Information and Communications Technologies (ICT) to all persons for them to participate in socio-economic activities such as accessing financial services and products, education and employment. This article provides an overview of the regulation of digital inclusion in the South African ICT sector by examining the Electronic Communications Act 36 of 2005, the Independent Communication Authority of South Africa Act 13 of 2000 and the Competition Act 89 of 1998. The article also investigates the legal and related challenges that affect the promotion of digital inclusion for the poor and low-income earners in South Africa. Challenges affecting the promotion of digital inclusion in South Africa such as racial segregation, digital illiteracy, language barriers, disability, geographical limitation, poverty, low-income and affordability are discussed. This is done to recommend possible measures that could be adopted by policymakers and the relevant regulatory bodies to enhance the promotion of digital inclusion for the poor and low-income earners in South Africa.

Keywords: digital inclusion, digital divide, technology, low-income earners, Covid-19.

JEL Classification: K23, K24

1. Introductory remarks

The coronavirus (COVID-19) pandemic has somewhat increased the reliance on digital technology for various financial services and products in South Africa. However, this development has inadvertently exposed the demographic inequalities on digital inclusion in the South African communities, especially in the rural and informal settlements.⁵ This huge digital divide has negatively affected the promotion of digital inclusion for the poor and low-income earners in South Africa. Digital inclusion refers to the provision of equitable access to Information and Communications Technologies (ICT) to all persons for them to participate in socio-economic activities such as accessing financial services, financial products, education and employment.⁶ The United Nations (UN) also defines digital inclusion as “equitable, meaningful, and safe access to use, lead, and design of digital technologies, services, and associated opportunities for everyone, everywhere”.⁷ This suggests that all persons should access digital technologies and related services anytime, regardless of where they reside. It is critical to note that mere access to ICT infrastructure such as the Internet

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⁵ G. Chisango, and N. Marongwe, ‘The Digital Divide at Three Disadvantaged Secondary Schools in Gauteng, South Africa’, 82 *Journal of Education* (2021), pp. 149, 151-165; M. Perez-Escolar, and F. Canet, ‘Research on Vulnerable People and Digital Inclusion: Towards a Consolidated Taxonomical Framework’, *Universal Access in the Information Society* (2022), pp. 1, 3-14; see related comments by T. Mkhize, and M. Davids, ‘Towards a Digital Resource Mobilisation Approach for Digital Inclusion During COVID-19 and Beyond: A Case of a Township School in South Africa’, 10(2) *Educational Research for Social Change* (2022), pp. 18, 21-32.

⁶ T. Oyedemi, ‘Participation, Citizenship and Internet Use Among South African Youth’, 32 *Telematics and Informatics* (2015), pp. 11, 12-22; M. Perez Escolar, and F. Canet, *Universal Access in the Information Society* (2022), pp. 1, 2-14; K. Aruleba, and N. Jere, ‘Exploring Digital Transformation Challenges in Rural Areas of South Africa Through a Systematic Review of Empirical Studies’, 16 *Scientific Africa* (2022), pp. 1, 3-13.

⁷ The United Nations ‘Roundtable on Digital Inclusion’, (Date Unknown) https://www.un.org/techenvoy/sites/www.un.org/techenvoy/files/general/Definition_Digital-Inclusion.pdf accessed 4 July 2023 at 2.

does not translate to adequate digital inclusion for all persons in a country. Digital inclusion further encompasses the provision of software and hardware, various digital services, and initiatives that are aimed at the promotion of digital literacy.⁸ Access to ICT is important to the society, especially for the poor and low-income earners. ICT plays an important role in education, employment, economic growth and citizen participation in e-government and social media.⁹ Nonetheless, there is still unequal access to ICT for the poor and low-income earners in the rural areas and informal settlements in South Africa. This is caused by various factors such as low-income for some individuals, digital illiteracy, the lack of Internet access, inadequate regulation, geographical limitations, disabilities, age, and racial segregation, which have worsened the digital divide.¹⁰ In this regard, the digital divide entails the gap in the usage and/or uneven access to ICTs for individuals across various communities, geographies, corporations, and socio-economic levels.¹¹ South African policymakers should combat this digital divide by adopting robust policies on the promotion of digital inclusion to enhance socio-economic development and financial inclusion for all persons, especially the poor and low-income earners.¹²

It is against this background that this article provides an overview discussion of the regulation of the South African ICT sector through the Electronic Communications Act,¹³ the Independent Communication Authority of South Africa Act,¹⁴ and the Competition Act.¹⁵ This is done to investigate the legal and related challenges that affect the promotion of digital inclusion in South Africa. Thereafter, possible measures that could be adopted by policymakers and the relevant regulatory bodies to promote digital inclusion in South Africa are discussed.

2. Overview of the regulation of the South African ICT Sector

2.1. The Independent Communications Authority of South Africa Act 13 of 2000

The ICASA Act was promulgated in 2000 to regulate the South African telecommunication sector in the public's interest and ensure the availability of high-quality and affordable services to all

⁸ A. Ritzhaupt, F. Liu, K. Dawson, and A. Barron, 'Differences in Student Information and Communication Technology Literacy Based on Socio-Economic Status, Ethnicity, and Gender: Evidence of Digital Divide in Florida Schools', 45(4) *Journal of Research on Technology in Education* (2013), pp. 291-307; E. Bornman, 'Information Society and Digital Divide in South Africa: Results of Longitudinal Surveys', 19(2) *Information, Communication and Society* (2016), pp. 264, 266-278.

⁹ G. Chisango, and N. Marongwe, 82 *Journal of Education* (2021), pp. 149-165; K. Ercikan, M. Asil, and R. Grover, 'Digital Divide: A Critical Context for Digitally Based Assessments', 26(51) *Education Policy Analysis Archives* (2018), pp. 1, 2-3; T. Oyedemi, 32 *Telematics and Informatics* (2015), pp. 11-22; A. Rahman, 'Toward a Comprehensive Conceptualization of Digital Divide and its Impact on E-Government System Success' in A. Rahman, *E-Services Adoption: Processes by Firms in Developing Nations (Advances in Business Marketing and Purchasing)* (Emerald Group Publishing Limited Bingley 2015), pp. 291, 293-488.

¹⁰ A. Ritzhaupt et al, 45(4) *Journal of Research on Technology in Education* (2013), pp. 291-307; M. Ellis, M. Ota, and A. Chen, 'Digital Divide of Perceptions, Usage, and Purchase Items in Japanese E-Payment Adoption' 30(2) *Journal of International Technology and Information Management* (2021), pp. 30, 35-58; L. Robinson, S. Cotton, H. Ono, A. Quan-Haase, G. Mesch, W. Chen, J. Schulz, T. Hale, and M. Stern, 'Digital Inequalities and Why They Matter', 18(5) *Information, Communication and Society* (2015), pp. 569, 571-582.

¹¹ G. Chisango, and N. Marongwe, 82 *Journal of Education* (2021), pp. 149-165; M. Ellis, M. Ota, and A. Chen, 30(2) *Journal of International Technology and Information Management* (2021), pp. 30-58; M. Ritzhaupt, et al, 45(4) *Journal of Research on Technology in Education* (2013), pp. 291-307.

¹² A. Rahman, 'Toward a Comprehensive Conceptualization of Digital Divide and its Impact on E-Government System Success', pp. 291-488.

¹³ See preamble, sections 2, 35, 35, 43, 67 and 69 of the Electronic Communications Act 36 of 2005 (ECA); D. Van der Merwe, 'Telecommunications Law' in D. Van der Merwe, (ed) *Information and Communications Technology Law 3rd ed* (LexisNexis South Africa 2021) pp. 11-38; G. Sibanda, 'Regulatory Environment Analysis in the South African Telecommunications Industry', 76(2) *South African Journal of Economics* (2008), pp. 212, 215-227.

¹⁴ See sections 2, 3, 4, 17 of the Independent Communications Authority of South Africa Act 13 of 2000 (ICASA Act); D. Van der Merwe, 'Telecommunications Law' in D. Van der Merwe, (ed) *Information and Communications Technology Law 3rd ed* (LexisNexis South Africa 2021), pp. 11-38; L. Thornton, 'Telecommunications Law' in L. Thornton, Y. Carrim, P. Mtshulana, and P. Reburn, (eds) *Telecommunications Law in South Africa* (STE Publishers Johannesburg 2006), pp. 16-48.

¹⁵ See sections 19, 21, 26, 36, 67 and 82 of the Competition Act 89 of 1998 (Competition Act); L. Mokgosi, 'The Telecommunications Regulators' in L. Thornton, Y. Carrim, P. Mtshulana, and P. Reburn, (eds) *Telecommunications Law in South Africa* (STE Publishers Johannesburg 2006) pp. 100-130; L. Thornton, 'Telecommunications Law', pp. 16-48.

persons.¹⁶ The ICASA Act established the Independent Communications Authority of South Africa (ICASA) as a single regulatory body which abolished two different regulatory bodies, namely the Independent Broadcasting Authority (IBA) and the South African Telecommunications Regulatory Authority (SATRA) that previously regulated telecommunications and broadcasting in South Africa respectively.¹⁷ The role of the ICASA is constitutionally enshrined with the Constitution of the Republic of South Africa, 1996 (Constitution), by recognising its sovereignty and mandating it to oversee ICT regulation.¹⁸ The ICASA Act provides the powers, membership and functions of the ICASA.¹⁹ The ICASA Act further establishes the Complaints and Compliance Committee (CCC).²⁰ The CCC is an independent body that is mandated to deal with matters referred to it by ICASA.²¹

The ICASA Act operates in tandem with the ECA to regulate postal-related matters that were formerly designated to the Telecommunications Act and the Broadcasting Act.²² The ICASA is responsible for licensing services and prescribing regulations in the ICT sector as well as protecting consumers from unfair practices. The ICASA may also adjudicate on licensing disputes and complaints that are brought against licensees.²³ The ICASA has concurrent jurisdiction with the Competition Commission²⁴ on any matters pertaining to competition in the ICT sector. However, the jurisdiction of the ICASA in competition matters is secondary to that of the Competition Commission. This follows the fact that the provisions of the Competition Act offer better protection against unlawful competition. Additionally, the Competition Commission is primarily empowered to detect and investigate any alleged prohibited mergers and related practices in the ICT sector.²⁵

To date, the ICASA has not adequately delivered on its mandate to promote digital inclusion. This is also caused by the poor enforcement of the relevant provisions of the ICASA Act.²⁶ Consequently, there is inadequate consumer protection and poor competition in the ICT sector due to challenges in facilities leasing and the allocation of spectrum licensing.²⁷ This has led to the challenges of high data prices that continue to impede the digital inclusion of the poor and low-income earners in the South African ICT sector.

2.2. The Electronic Communications Act 36 of 2005

The ECA was enacted in 2006 in an attempt to respond to various flaws and challenges that

¹⁶ See section 2 of the ICASA Act; D. Van der Merwe, 'Telecommunications', pp. 11-38; Z. Lesame, 'The New Independent Communications Authority of South Africa: Its Challenges and Implications for the Telecommunications Liberalisation in the Country', 28(2) *Communicatio* (2000), pp. 28, 30-36.

¹⁷ See section 3 of the ICASA Act; L. Thornton, 'Telecommunications Law', pp. 16-48; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130.

¹⁸ See section 192 of the Constitution and section 3 of the ICASA Act; L. Thornton, 'Telecommunications Law', pp. 16-48; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130.

¹⁹ See section 4 of the ICASA Act; D. Van der Merwe, 'Telecommunications', pp. 11-38; Z. Lesame, 28(2) *Communicatio* (2000), pp. 28-36.

²⁰ See section 17A of the ICASA Act; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130; Z. Lesame, 28(2) *Communicatio* (2000), pp. 28-36.

²¹ See section 17A of the ICASA Act; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130; Z. Lesame, 28(2) *Communicatio* (2000), pp. 28-36.

²² See section 1 of the ICASA Act; also see section 1 of the Telecommunications Act 103 of 1996, which has since been repealed; see also section 1 of the Broadcasting Act 4 of 1999; D. Van der Merwe, 'Telecommunications', pp. 11-38; Z. Lesame, 28(2) *Communicatio* (2000), pp. 28-36.

²³ See section 4 of the ICASA Act; D. Van der Merwe, 'Telecommunications', pp. 11-38; Z. Lesame, 28(2) *Communicatio* (2000), pp. 28-36.

²⁴ See section 3(1A) of the Competition Act; P. Sutherland, and K. Kemp, *Competition Law of South Africa* (Lexis Nexis South Africa 2021), pp. 1-55.

²⁵ See section 67 of the Competition Act; P. Sutherland, and K. Kemp, *Competition Law of South Africa* (LexisNexis South Africa 2021), pp. 11-10.

²⁶ A. Oberholzer, M. Cullen, and C. Andendorff, 'The Impact of Infrastructural Change and Regulation on Entrepreneurial Competitiveness in the South African Telecommunications Sector', 45(3) *South African Journal of Business Management* (2014), pp. 97, 99-110; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

²⁷ A. Oberholzer, M. Cullen, and C. Andendorff, 45(3) *South African Journal of Business Management* (2014), pp. 97-110; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227; B. Howell, and P. Potgieter, 'Effective Competition and Ineffective Mobile Industry Regulation in South Africa', 46(7) *Telecommunications Policy* (2022), pp. 1, 3-27.

were prominent in the ICT sector.²⁸ The ECA was enacted to regulate the convergence of the telecommunications and broadcasting infrastructures as well as the licensing regime in South Africa.²⁹ The ECA is a primary statute for the substantive regulation of the South African electronic communication sector.³⁰ It provides guidelines on electronic communications and support the South African government with mechanisms that are necessary to circumvent any forms of unfair competition in the ICT sector.³¹ The ECA also facilitates the implementation of a flexible regulatory framework that accommodates the convergence of technologies and services to promote interoperability of various networks.³²

Policy directions and ministerial policies are provided by delineating the role of the minister and ICASA under Chapter 2 of the ECA. The Minister of Communications is empowered to develop regulations and make national policies that are consistent with the objectives of the ECA on matters applicable to the South African ICT sector.³³ While the ICASA is obligated to consider ministerial policies, the body is not statutorily obliged to implement the such policies.³⁴ The ECA broadly provides for access to facilities, infrastructure rights, competition, lease facilitation, and consumer protection.³⁵ The ECA promotes the use of ICT infrastructures across South Africa to ensure that all communities, especially the poor and low-income earners' communities have adequate access to ICT infrastructures.³⁶ The ECA promotes fair competition practices by providing that traditional network providers should function in an unbiased manner. Unless exemptions apply, the ECA requires licensing for the provision of Electronic Communications Network Systems (ECNS) and Electronic Communications Services (ECS).³⁷ In this regard, the ECA requires ICASA to ensure that service licenses are granted to persons from diverse backgrounds, taking into consideration the objects of the Broad-Based Black Economic Empowerment Act.³⁸

Nonetheless, the role of the minister under the ECA allows the diminution of the powers of the ICASA.³⁹ This gives rise to political interference by the minister and the lack of independence on the part of the ICASA. In this regard, the ICASA must be given more authority to enable it to effectively enforce the provisions of the ICASA Act and the ECA. More should be done to promote digital inclusion in South Africa by adequately providing for partnerships through regulatory measures that are aimed at constructing and developing ICT infrastructures. The licensing regulatory provisions should be amended to enhance competition in the South African ICT sector.

2.3. The Competition Act 89 of 1998

The Competition Act established various regulatory bodies namely the Competition

²⁸ See preamble of the ECA; D. Van der Merwe, 'Telecommunications Law', pp 11-38; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp 212-227.

²⁹ See section 2 of the ECA; D. Van der Merwe, 'Telecommunications Law', pp. 11-38; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

³⁰ D. Van der Merwe, 'Telecommunications Law', pp. 11-38; see related comments by G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp 212-227

³¹ See section 2 of the ECA; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

³² See preamble and section 2 of the ECA; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

³³ See section 3 of the ECA; D. Van der Merwe, 'Telecommunications Law', pp. 11-38.

³⁴ D. Van der Merwe, 'Telecommunications Law', pp. 11-38; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

³⁵ See sections 5, 35, 43, 67 and 69 of the ECA; D. Van der Merwe, 'Telecommunications Law,' pp. 11-38; L. Granville, and H. Irvine, 'The Impact of Regulation on Competition in Telecommunications and Piped Gas', 14 *The African Journal of Information and Communication* (2015), pp. 38, 40-49.

³⁶ See section 2 and 82 of the ECA; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

³⁷ See chapter 4 of the ECA; see related comments by A Oberholzer, M Cullen and C Andendorff, 45(3) *South African Journal of Business Management* (2014), pp. 97-110; see related comments by G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

³⁸ Broad-Based Black Economic Empowerment Act 53 of 2003; see section 2 of the ECA; see related comments by A. Oberholzer, M. Cullen, and C. Andendorff, 45(3) *South African Journal of Business Management* (2014), pp. 97-110

³⁹ G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227; R. Hawthorne, 'Economic Regulation of the Telecommunications Sector in South Africa 2009-2014', 14 *African Journal of Information and Communication* (2015), pp. 20, 22-37.

Commission, the Competition Tribunal, and the Competition Appeal Court.⁴⁰ These role-players were mainly established to enforce standards that combat anti-competitive conduct in the South African commercial sector.⁴¹ They also ensure fairness in the commercial sector by conducting enquiries on any anti-competitive practices by the offenders. In this regard, it is crucial to note that the Competition Act is generally aimed at regulating competition matters across various industries and sectors in the South African ICT sector.⁴²

The Competition Commission is obliged to negotiate and enter into agreements with various regulatory bodies to ensure the coordination and harmonisation of all competition matters pertaining to jurisdiction.⁴³ This is done to promote the consistent application of the Competition Act in the ICT and other related sectors. The Competition Commission and the ICASA entered into a memorandum of understanding (MOU) to establish a partnership to manage and promote the independence of the ICT sector.⁴⁴ This MOU regulates matters such as principles of cooperation between the regulatory bodies when dealing with complaints, determinations on effective electronic communications and market power and mergers.⁴⁵ The Competition Act further empowers the Competition Commission to participate in the proceedings of other regulatory bodies such as the ICASA and advise them or receive advice from them in respect thereof.⁴⁶ The Competition Act prohibits anti-competitive practices such as dividing markets, price-fixing, collusive tendering and illicit horizontal relationship agreements and practices.⁴⁷ Additionally, practices constituting abuse of dominant position such as excessive charging, refusal to grant access to essential facilities, price discrimination and engaging in exclusionary acts are also outlawed under the Competition Act.⁴⁸ Where there is an alleged contravention of the Competition Act, the Competition Commission or any other person may institute a complaint to enable the Competition Commission to investigate and/or refer it to the Competition Tribunal for further adjudication once a prohibited act has been determined.⁴⁹

However, the concurrent jurisdiction of the Competition Commission and the ICASA is problematic and difficult to enforce in practice.⁵⁰ This follows the fact that concurrent jurisdiction poses some uncertainty challenges for the relevant regulatory bodies when performing their functions, especially during the determination of outcomes in the telecommunications sector.⁵¹ Accordingly, the ICASA should be empowered with primary jurisdiction in ICT sectoral matters while the Competition Tribunal deals with all appeals.

3. Selected challenges contributing to the digital divide in South Africa

The poor digital inclusion challenges in the South African ICT sector are multi-faceted. In addition to the flaws identified above, there are various challenges affecting the promotion of digital

⁴⁰ See sections 19, 26, 36 & 43F of the *Competition Act*; L Mokgosi 'The Telecommunications', pp. 100-130; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 1-55.

⁴¹ See sections preamble, 19, 26 and 36 of the *Competition Act*; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 1-55.

⁴² See sections 2 and 3 of the *Competition Act*; L. Thornton, 'Telecommunications Law', pp. 16-48; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130.

⁴³ See section 21(1)(h) read with section 82(1)-(3) of the *Competition Act*; L. Thornton, 'Telecommunications Law', pp. 16-48.

⁴⁴ See section 21(1)(h) read with section 82(1)-(3) of the *Competition Act*; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 4-48.

⁴⁵ See section 21(1)(h) read with section 82(1)-(3) of the *Competition Act*; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 4-48.

⁴⁶ See sections 21(1)(i) and 21(1)(j) of the *Competition Act*; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 4-48.

⁴⁷ See sections 4 and 5 of the *Competition Act*; L. Mokgosi, 'The Telecommunications Regulators' 100-130; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 5-3.

⁴⁸ See Sections 8 and 9 of the *Competition Act*; L. Mokgosi, 'The Telecommunications Regulators' 100-130; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 5-4.

⁴⁹ See section 50 of the *Competition Act*; L. Mokgosi, 'The Telecommunications Regulators', pp. 100-130; P. Sutherland, and K. Kemp, *Competition Law of South Africa*, pp. 11-10.

⁵⁰ G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227; A. Gillwald, 'Good Intentions, Poor Outcomes: Telecommunications Reform in South Africa', 29 *Telecommunications Policy* (2005), pp. 469, 470-491.

⁵¹ G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227; A. Gillwald, 29 *Telecommunications Policy* (2005), pp. 469-491.

inclusion for the poor and low-income earners in South Africa. These challenges include individuals' low-income, digital illiteracy, the lack of Internet, inadequate regulation, geographical limitations, disabilities, age, and racial segregation as discussed below.

3.1. Racial segregation

Race tends to be a very influential factor with regard to determining the "haves and have-nots" on data access in South Africa. Black people generally have less access to ICT devices and Internet in comparison to white people who often possess a wide range of technological devices and have better access to ICT infrastructures in South Africa.⁵² This follows the fact that apartheid policies enacted between 1948 and 1994 created dualism in the provision of services including in the provision of ICT services.⁵³ This has resulted in white urban areas having sophisticated and well-maintained ICT infrastructures while black rural areas, informal settlements and townships have poor ICT infrastructures that are not very well maintained and/or no ICT infrastructures at all. The inequalities of the apartheid system still exist today and previously disadvantaged persons are still digitally excluded and unable to access and make use of ICT to improve their lives.

3.2. Digital illiteracy

For an ICT user to get the most out of their user experience, it is important that they possess the skills that are necessary for operating ICT software and hardware, and for engaging meaningfully in online communication. Generally, there is a correlation between high income and better educational background and a better command of ICT skills that are relevant to the utilisation of databases, search engines, bookkeeping, spreadsheets, and the use of other various applications.⁵⁴ High-income earners armed with better educational backgrounds can utilise ICT skills and make full use of ICT devices and opportunities. Low-income earners on the other hand often have poor educational backgrounds and do not possess strong ICT skills.⁵⁵ The government and other relevant role-players should invest in the education of all persons and provide them with the necessary skills to enable them to benefit from digital inclusion.

3.3. Language barriers

Access to the Internet has been very skewed towards individuals with a command of English.⁵⁶ That is until recently when Google started to offer translations of a user's internet searches in Setswana, Zulu, Xhosa, and Afrikaans. This was a monumental step towards bridging the digital divide as the poor and low-income earners are able to access the Internet in a language that they understand. However, the poor and low-income earners are usually illiterate and unable to access, search and interpret the Internet.

⁵² T. Oyedemi, 'Digital Inequalities and Implications for Social Inequalities: A Study of Internet Penetration Amongst University Students in South Africa', 29 *Telematics and Informatics* (2012), pp. 302, 305-313; K. Aruleba, and N. Jere, 16 *Scientific African* (2022), pp. 1-13; L. Nyahodza, and R. Higgs, 'Towards Bridging the Digital Divide in Post-Apartheid South Africa: A Case Study of a Historically Disadvantaged University in Cape Town', 83(1) *South African Journal of Libraries and Information Systems* (2017), pp. 39, 40-48; L. Robinson, et al, 18(5) *Information, Communication and Society* (2015), pp. 569-582.

⁵³ K. Aruleba, and N. Jere, 16 *Scientific African* (2022), pp. 1-13; T. Mkhize, and M. Davids, 10(2) *Educational Research for Social Change* (2021), pp. 18-32; R. Lembani, A. Gunter, M. Breines, and M. Dalu, 'The Same Course, Different Access: The Digital Divide Between Urban and Rural Distance Education Students in South Africa', 44(1) *Journal of Geography in Higher Education* (2020), pp. 70, 71-84.

⁵⁴ E. Bornman, 19(2) *Information, Communication and Society* (2016), pp. 264-278; C. Fuchs, and E. Horak, 'Africa and the Digital Divide', 25 *Telematics and Informatics* (2008), pp. 99-116; R. Lembani, et al, 44(1) *Journal of Geography in Higher Education* (2020), pp. 70-84.

⁵⁵ C. Fuchs, and E. Horak, 25 *Telematics and Informatics* (2008), pp. 99-116; J. Van Dijk, *The Network Society: Social Aspects of New Media* 2nd ed (Sage London 2006), p. 182; K. Aruleba, and N. Jere, 16 *Scientific Africa* (2022), pp. 1-13; I. de Lanerolle, 'How ICT Policy and Regulation is Failing the Less Connected in South Africa', *CPR South* (2018), pp. 1-6.

⁵⁶ L. Nyahodza, and R. Higgs, 83(1) *South African Journal of Libraries and Information Systems* (2017), pp. 39-48.

3.4. Poverty and low-income

Access and use of technological devices and/or ICT depends on a community or an individual's socio-economic status.⁵⁷ The poor and low-income earners usually do not afford to purchase, maintain and use ICT devices and services in South Africa. Additionally, the poor and low-income earners usually have access to the Internet through their mobile phones by purchasing data bundles at exorbitant prices.⁵⁸ In contrast, high-income earners have access to ICT gadgets such as laptops, desktops and tablets and are able to access the Internet through fibre. It is important to note that the South African government has not yet provided adequate ICT infrastructure in the rural areas, informal settlements and townships where most poor and low-income earners reside.

3.5. Geographical limitations

The Internet and other ICT infrastructures are mostly available in urban areas, where high-income earners reside.⁵⁹ Thus, townships, rural areas and informal settlements do not have Internet and other relevant ICT infrastructures such as fibre, digital subscriber line (DSL) and wireless Internet.⁶⁰ This status quo could be attributed to a number of factors such as the poor maintenance of ICT infrastructures, the high cost of installing ICT infrastructure and limited electricity.⁶¹ The aforesaid geographical limitations could be additionally assessed in terms of the development status of a country and individuals hailing from indigenous and/or native communities.⁶² The lack of ICT infrastructures has contributed to the digital exclusion of the poor and low-income earners who reside in townships, rural areas and informal settlements. Consequently, there is a huge digital divide between those who reside in urban areas and those that reside in townships, rural areas and informal settlements in South Africa.

3.6. Disabilities

Disabilities such as blindness and/or visual impairment also affect an individual's access to technological gadgets, ICT infrastructure and Internet.⁶³ While technological advancements have allowed visually impaired individuals to utilise computers through devices such as brail keyboards and screen readers, the poor and low-income earners do not always have access to such technological devices. Additionally, visually impaired, or blind persons who are poor and low-income earners cannot independently utilise the Internet owing to the fact that screen readers have not been developed to the point where they are able to process and read graphical web pages.⁶⁴ Affordability and high

⁵⁷ M. Perez-Escola, and F. Canet, *Universal Access to the Information Society* (2022), pp. 1-14; T. Oyedemi, 29 *Telematics and Informatics*, (2012), pp. 302-313; K. Aruleba, and N. Jere, 16 *Scientific Africa* (2022), pp. 1-13; A. Rahman, 'Towards Comprehensive Conceptualization of Digital Divide and its Impact on E-Government System Success', pp. 291-488.

⁵⁸ T. Oyedemi, 29 *Telematics and Informatics* (2012), pp. 302-313; K. Aruleba, and N. Jere, 16 *Scientific African* (2022), pp. 1-13; L. Robinson, et al, 18(5) *Information, Communication and Society* (2015), pp. 569-582; E. Bornman, 19(2) *Information, Communication and Society* (2016), pp. 264-278.

⁵⁹ M. Ellis, M. Ota, and A. Chen, 30(2) *Journal of International Technology and Information Management* (2021), pp. 30-58; T. Oyedemi, 29 *Telematics and Informatics* (2012), pp. 302-313; E. Megwa, 'Bridging the Digital Divide: Community Radio's Potential for Extending Information and Communication Technology Benefits to Poor Rural Communities in South Africa', 18 *The Howard Journal of Communication* (2007), pp. 335, 336-352.

⁶⁰ M. Ellis, M. Ota and A. Chen, 30(2) *Journal of International Technology and Information Management* (2021), pp. 30-58; T. Oyedemi, 29 *Telematics and Informatics* (2012), pp. 302-313; E. Bornman, 19(2) *Information, Communication and Society* (2016), pp. 264-278.

⁶¹ K. Aruleba, and N. Jere, 16 *Scientific African* (2022), pp. 1-13; see related comments by C. Fuchs, and E. Horak, 25 *Telematics and Informatics* (2008), pp. 99-116.

⁶² R. Lembani, et al, 41(1) *Journal of Geography in Higher Education* (2020), pp. 70-84; E. Megwa, 18 *The Howard Journal of Communication* (2007), pp. 335-352; A. Rahman, 'Towards Comprehensive Conceptualization of Digital Divide and its Impact on E-Government System Success', pp. 291-488.

⁶³ M. Perez-Escola, and F. Canet, *Universal Access to the Information Society* (2022), pp. 1-14; see related comments by M. Ellis, M. Ota, and A. Chen, 30(2) *Journal of International Technology and Information Management* (2021), pp. 30-58; also see E. Megwa, 18 *The Howard Journal of Communication* (2007), pp. 335-352.

⁶⁴ See related comments by M. Ellis, M. Ota, and A. Chen, 30(2) *Journal of International Technology and Information Management* (2021), pp. 30-58.

illiteracy create additional barriers to the poor and low-income earners in South Africa. Other disabilities such as lameness and deafness also negatively affect the access and utilisation of the Internet and ICT infrastructure by the poor and low-income earners.

3.7. Age as a barrier to digital inclusion

Age is another barrier to digital inclusion.⁶⁵ Generally, the youth are more inclined to utilise Internet and ICT devices since they are now used in schools and places of employment. On the contrary, senior citizens do not frequently use ICT devices. Millennials and Generation X Internet users grew up in a time where technological developments were increasing.⁶⁶ Senior citizens on the other hand have been sceptical and not very comfortable to use Internet and ICT devices owing to their old age.⁶⁷ Therefore, older people are digitally excluded because they experience more barriers when utilising ICT devices and Internet.

3.8. Psychological barriers to digital inclusion

Van Dijk developed a model for access to ICT which considers the mental and/or motivational component that relates to the digital divide as well as the use and acquisition of ICT.⁶⁸ Accordingly, Van Dijk argues that motivation plays a key role in the acquisition and utilisation of technology devices and developments. This model provides that individuals that believe that a certain technology device is not important are likely not to acquire it. Furthermore, technophobia which refers to the fear of using technology, as well as the stress and anxiety of utilising technological devices are additional mental barriers to the acquisition and use of ICT infrastructures and the Internet, especially for the poor and low-income earners.⁶⁹ These factors play a negative role in broadening the digital divide in South Africa. This follows the fact that individuals should be willing to take the initiative and learn how to utilise the Internet, ICT devices and relevant software effectively. Moreover, apathy and/or the lack of interest to improve information and computer literacy on the part of an ICT user is a choice and effort that no role-player intervention may be able to change and/or incentivise.

4. Recommendations to bridge the digital divide

4.1. Providing affordable internet access

Policymakers and relevant regulatory bodies such as the ICASA should adequately perform their functions to make ICT services and products universally accessible to all persons, especially the poor and low-income earners. This could be done by taking actions such as competitively evaluating and allocating spectrum for wireless broadband use in the mobile segment of the ICT sector.⁷⁰ Additionally, policymakers could develop new price and affordability indices that indicate the price

⁶⁵ A. Rahman, 'Towards Comprehensive Conceptualization of Digital Divide and its Impact on E-Government System Success', pp. 291-488; J. Van Dijk, and K. Hacker, 19(4) *The Information Society* (2003), pp. 315-326; B. Oyelaran-Oyeyinka, and K. Lal 'Internet Diffusion in Sub-Saharan Africa: A Cross-Country Analysis' 29 *Telecommunications Policy* (2005), pp. 507, 510-527; C. Fuchs and E. Horak, 25 *Telematics and Informatics* (2008), pp. 99-116.

⁶⁶ M. Ellis, M. Ota, and A. Chen, 30(2) *Journal of International Technology and Information Management* (2021), pp. 30-58; M. Perez-Escola, and F. Canet, *Universal Access to the Information Society* (2022), pp. 1-14.

⁶⁷ M. Ellis, M. Ota, and A. Chen, 30(2) *Journal of International Technology and Information Management* (2021) pp. 30-58; M. Perez-Escola, and F. Canet, *Universal Access to the Information Society* (2022), pp. 1-14; C. Fuchs, and E. Horak, 25 *Telematics and Informatics* (2008) pp. 99-116.

⁶⁸ J. Van Dijk, *The Handbook of Internet Politics* (Routledge London 2008); R. Lembani, *et al*, 44(1) *Journal of Geography in Higher Education* (2020), pp. 70-84; A. Rahman 'Towards Comprehensive Conceptualization of Digital Divide and its Impact on E-Government System Success', pp. 291-488; C. Fuchs, and E. Horak, 25 *Telematics and Informatics* (2008), pp. 99-116.

⁶⁹ K. Spelman, and N. Marongwe, 'Technophobia: Understanding Computer Anxiety for Teaching and Learning of Computer Studies', 9(1-2) *Journal of Communication* (2018), pp. 11, 12-23; J. Van Dijk, and K. Hacker, *The Information Society* (2003), pp. 315-326.

⁷⁰ A. Gillwald, M. Moyo, and C. Stork, 'Understanding What is Happening in ICT in South Africa: A Supply and Demand-side Analysis of the ICT Sector', *Policy Paper 7* (2012), pp. 1-78; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227; I. de Lanerolle, *CPR South* (2018), pp. 1-6.

discrimination which is prevalent among the poor and low-income earners.⁷¹ This price discrimination is perpetuated through the utilisation of international benchmarks that assess affordability using national average income as an indicator that does not account for no-income and low-income individuals.⁷²

4.2. Encouraging competition in the ICT Sector

Gillwald, Moyo and Stork submit that the policy environment in the South African ICT sector has not been conducive for attracting investment or the formulation of institutional arrangements that could promote competition.⁷³ Subsequent to the flaws identified in the regulation of the ICT sector, the policymakers should do more to encourage competition in the South African ICT sector.

4.3. Attracting foreign capital and local investment to improve ICT infrastructures

Investment and funding for the expensive exercise of constructing ICT infrastructure are critical to ensure that such infrastructure is universally accessible. It is also important for funding to be secured for the long-term sustainability of ICT infrastructures and to protect them against damage and theft.⁷⁴ The government and the private sector should establish infrastructure funding partnerships with the objective of making ICT infrastructures universally accessible to bridge the digital divide for the poor and low-income earners in the South African ICT sector.⁷⁵ Funding and investment in the South African ICT sector are also crucial for other initiatives aimed at promoting digital inclusion for poor and low-income earners in South Africa. Funding is further needed for the production and delivery of training materials, public awareness campaigns, technology start-up companies and providing learnerships and bursaries for ICT-related skills and studies in South Africa.⁷⁶

4.4. Digital skills empowerment

The government and other relevant role-players such as regulatory bodies and NPOs should actively contribute to the alleviation of the digital divide by empowering the poor and low-income earners with the necessary ICT skills.⁷⁷ From an educational perspective, the Department of Basic Education should invest more resources in providing access to ICT hardware and software in rural and informal settlement schools as well as the provision of training to teachers to ensure that they can impart these ICT skills to their students. An up to date and adequate curricula should be designed from early childhood development (ECD) centres to tertiary institutions to empower individuals at different stages of learning with the relevant ICT skills.⁷⁸ Awareness campaigns and public engagements should also be utilised by the government and relevant stakeholders to educate all persons on the benefits of ICT and digital skills.

⁷¹ I. de Lanerolle, *CPR South* (2018), pp. 1-6; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

⁷² G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227; I. de Lanerolle, *CPR South* (2018), pp. 1-6.

⁷³ A. Gillwald, M. Moyo, and C. Stork, *Policy Paper 7* (2012), pp. 1-78; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

⁷⁴ See related comments in the Department of Telecommunications and Postal Services, *National Integrated Policy White Paper* (GN No 1212 published in GG No 40325 03 October 2016); T. Mkhize, and M. Davids, 10(2) *Educational Research for Social Change* (2021), pp. 18-32.

⁷⁵ Department of Communications and Digital Technologies, *National Digital and Future Skills Strategy* (GN 513 published in GG No 43730 23 September 2020); see related comments in GN No 1212 published in GG No 40325 03 October 2016; see also T. Mkhize, and M. Davids, 10(2) *Educational Research for Social Change* (2021), pp. 18-32.

⁷⁶ GN 513 published in GG No 43730 23 September 2020.

⁷⁷ K. Aruleba, and N. Jere, 16 *Scientific African* (2022), pp. 1-13; see related comments by T. Mkhize, and M. Davids, 10(2) *Educational Research for Social Change* (2021), pp. 18-32.

⁷⁸ GN 513 published in GG No 43730 23 September 2020; see related comments by T. Mkhize, and M. Davids, 10(2) *Educational Research for Social Change* (2021), pp. 18-32.

4.5. Utilising libraries to bridge the digital divide

Public libraries in rural areas and inner-city should be well-resourced to ensure that members of communities have equitable access to the relevant information.⁷⁹ The government should facilitate the provision of ICT skills, software, and hardware to all communities through their community libraries so as to promote digital inclusion in South Africa. The ICT devices and infrastructure such as computers, wi-fi and database management tools should be easily available in the informal settlements and rural communities' libraries.⁸⁰ All communities should be made aware of the importance of ICT devices and infrastructure that are provided in their libraries to promote digital skills empowerment. The corporate and private sectors should also assist by funding library projects that are aimed at promoting digital inclusion in rural and informal settlements where most low-income earners and the poor reside.

4.6. Robust data governance regulation

South African digital inclusion policies should promote access to ICT for the poor and low-income earners without the negative effects of online surveillance. For instance, the provision of Internet data from underserved communities where the poor and low-income earners reside should be utilised address the discrimination and injustices of the past in South Africa.⁸¹ In light of this, a robust data governance framework should be introduced to provide for the just use of data as well as accountability and transparency in the use of algorithms that are designed from such data for the benefit of the poor and low-income earners.⁸² All persons, especially the vulnerable, poor and low-income earners should not be discriminated against based on the data they produce and/or the algorithms that such data is used to generate. This will build some trust among the poor and low-income earners in utilising the ICT devices and other relevant digital infrastructures.

5. Concluding remarks

The increased use of technology during the COVID-19 pandemic has undoubtedly highlighted the need to bridge the digital divide in South Africa. The South African ICT sector is faced with digital inequalities which require expedient resolution. Accordingly, appropriate measures should be taken to improve the South African ICT sector statutory regulatory and governance framework through the ECA,⁸³ the ICASA,⁸⁴ and the Competition Act⁸⁵ to promote digital inclusion for the poor and low-income earners in South Africa. In this regard, the various statutory flaws identified in this

⁷⁹ M. Perez-Escala, and F. Canet, *Universal Access to the Information Society* (2022), pp. 1-14; M. Lediga, and M. Fombad, 'The Use of Information and Communication Technologies in Public Libraries in South Africa as Tools for Bridging the Digital Divide: The Case of Kempton Park Public Library', 37(3) *Public Library Quarterly* (2018), pp. 296-305; R. Raju, and J. Raju, 'The Public Library as a Critical Democratic Institution', 20(1) *Libres* (2010), pp. 1-13.

⁸⁰ M. Lediga, and M. Fombad, 37(3) *Public Library Quarterly* (2018), pp. 296-305; R. Raju, and J. Raju, 20(1) *Libres* (2010), pp. 1-13.

⁸¹ L. Taylor, 'What is Data Justice? The Case for Connecting Digital Rights and Freedoms Globally', *Big Data and Society* (2017), pp. 1, 2-14; K. Kemp, 'Concealed Data Practices and Competition Law: Why Privacy Matters', 16(2) *European Competition Journal* (2020), pp. 628, 630-672; L. Dencik, and J. Sanchez-Montero, 'Data Justice', 11(1) *Internet Policy Review* (2022), pp. 1-16.

⁸² L. Dencik, A. Hintz, J. Redden, and E. Trere, 'Exploring Data Justice: Conceptions, Applications and Directions', 22(7) *Information, Communication and Society* (2019), pp. 873, 875-881; L. Dencik, J. Sanchez-Montero, 'Data Justice' 11(10) *Journal of Internet Regulation* (2021), pp. 1-16; R. Scheele, 'Facebook: From Data Privacy to a Concept of Abuse by Restriction of Choice', 12(1) *Journal of European Competition Law and Practice* (2021), pp. 34-37.

⁸³ See preamble, sections 2, 35, 35, 43, 67 and 69 of the ECA Act; D. Van der Merwe, 'Telecommunications Law' in D. Van der Merwe, (ed) *Information and Communications Technology Law* 3rd ed (LexisNexis South Africa 2021), pp. 11-38; G. Sibanda, 76(2) *South African Journal of Economics* (2008), pp. 212-227.

⁸⁴ See sections 2, 3, 4, 17 of the ICASA Act; D. Van der Merwe, 'Telecommunications Law' in D. Van der Merwe, (ed) *Information and Communications Technology Law* 3rd ed (LexisNexis South Africa 2021), pp. 11-38; L. Thornton, 'Telecommunications Law' in L. Thornton, Y. Carrim, P. Mtshulana, and P. Reburn, (eds) *Telecommunications Law in South Africa* (STE Publishers Johannesburg 2006), pp. 16-48.

⁸⁵ See sections 19, 21, 26, 36, 67 and 82 of the Competition Act; L. Mokgosi, 'The Telecommunications Regulators' in L. Thornton, Y. Carrim, P. Mtshulana, and P. Reburn, (eds) *Telecommunications Law in South Africa* (STE Publishers Johannesburg 2006), pp. 100-130; L. Thornton, 'Telecommunications Law' pp. 16-48.

article should be adequately to effectively bridge the digital divide in South Africa, especially among the poor and low-income earners. Thus, the government, regulatory bodies and other relevant stakeholders should adopt appropriate measures to combat regulatory challenges such as the inadequate provision of ICT infrastructures and flawed regulation of the licensing regime in the ICT sector to promote competition under the ECA and other relevant laws. Additionally, the ICASA should curb the delays in licensing to promote competition in the ICT sector. The government and other relevant stakeholders should provide adequate ICT infrastructure and Internet access in rural areas and informal settlements. Furthermore, the challenges associated with the concurrent jurisdiction of the ICASA and the Competition Commission should be carefully investigated and resolved.

Over and above, the various recommendations that were proffered in this article to promote digital inclusion such as overcoming language barriers, making Internet access more affordable, empowering the poor and low-income earners with digital skills and encouraging competition in the ICT sector should be seriously considered by the policy makers, the government and other relevant stakeholders. Lastly, the government, regulatory bodies and other relevant stakeholders should effectively cooperate and collaborate to develop ICT infrastructure and promote digital inclusion in South Africa.

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