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Digitalising analogue policy targets! ‘Digital capabilities’ of older persons and policy digitalisation of social safety net programs in a developing country context

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ABSTRACT

The optimization of the human-centeredness of technological innovations – policy digitalization - has exceedingly proliferated in most policy sectors. Yet, a few studies exist on the implications of digital policy tools in realizing social protection policies for older people, particularly in Africa. This paper discusses this issue. It examines data on the ‘digital capabilities’ of older persons and how digital technologies impact their usage and access to social safety net programs in Kenya, where digital policy tools like mHealth and e-Payment platforms are used to realize them. The data collection involved interviews with 81 respondents between 65-90 years of age (individuals targeted by social safety net programs and Social Protection officers). Findings show a need for more robust and policy target-sensitive efforts and budget allocation to overcome policy digitalization challenges, especially those arising from structural governance inequalities or older people’s capability deficits that underpin digital transformation pathways for different policy targets. Most older people in rural areas have negative attitudes and low user digital capabilities toward digital services. This is partly due to a range of challenges from infrastructural deficiencies, low access to internet resources to inadequate policy communication around digital tools. However, higher digital capabilities of policy targets and positive societal attitudes toward digital platforms could improve effective ‘public policy digitalization’ with more targeted investments and user-sensitive designs in place.

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Introduction

In the dawn of the 5th Industrial Revolution—optimizing the human-centeredness of technological innovations (society 5.0) (Noble et al., 2022; Fukuda, 2022)—the contours of policy digitalization: *the calibration of digital technologies into policy design and processes to maximize policy*

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outcomes has exceedingly expanded. But, whilst digital transformation and policy digitalization is coming in handy in improving public policy processes and effectiveness, it has inevitably also taken cues from or exacerbated the existing systemic inequalities that characterize governance systems and policy implementation (Katz & Aspden, 1997; Mutula, 2008; Devereux & Vincent, 2010; Bol et al., 2018; Helsper, 2021; Okano, Ponce, Krönke, & Blower, 2022). Put differently, digital transformation and policy digitalization do not occur in a vacuum. They are leveraged in contexts and systems already dealing with and characterized by unique, deep-seated challenges and inequalities.

This situation becomes relatively more complex in developing African countries yet to realize more democratic policy systems—social accountability, citizen-centredness, representativeness, and responsiveness to policy inputs—and where structural factors pose significant implications for policy digitalization. This means digital transformation and policy digitalization feature intricate problems of how the state society and government-citizen are organized and function (Gopaldas, 2019; Mutsvairo & Rønning, 2020) and how this directs policy instruments and goals constellations (Onyango 2023).

Efforts to understand these dimensions have deliberated on factors bordering on systemic capabilities like internet infrastructures, institutional capacities, and the political will variables (Diyamett, 2023), policy innovation designs and affordability (Arthur et al., 2020; World Bank, 2021), and their links to user capabilities that determine effective policy digitalization (Krönke, 2020; Mo Ibrahim Foundation 2021). More specifically, studies on technologically embedded social inequalities like the digital divide broadly focus on three components of technological consumption: access, usage, and results (Mutula, 2008; Katz & Aspden, 1997; World Bank, September 24, 2021; Onyango & Ondiek, 2021; Onyango, 2023; Arthur et al., 2020; Ndemo and Weiss, 2017). The focus has broadly interrogated the levels of technological literacy, capabilities and digital resources to access public service delivery (Buchert et al., 2023; Lolich and Timonen, 2022).

While most of these studies provide critical insights into the policy digitalization trajectories, including how older people are negatively being affected by the mentioned factors (Khilnani, Schulz, & Robinson, 2020; Ftouni et al., 2022), they are yet to adequately address how emerging digital inequalities in social protection policies affect the older population in Africa. This is despite a growing interest in digital inequalities, as was significantly displayed during the COVID-19 pandemic when countries turned to digital technologies to monitor lockdown regulations and deliver public service, especially those related to telemedicine (Chitungo et al., 2021), safety net policies (Beaunoyer, Dupéré, & Guitton, 2020), e-learning (see Mo Ibrahim Foundation 2021) or reinvigorating the economy (see, Onyango & Ondiek, 2022).

This paper builds on the growing interest in emerging digital inequalities in policy digitalization of social protection programmes and its implications for older people (see, Kania-Lundholm and Torres, 2015; Kaihlanen et al., 2022; Lolich and Timonen, 2022). It reflects on evidence from Kenya using the ‘digital capability’ lens where *digital capability* connotes functioning (infrastructure like availability of internet and device, societal attitudes), affordability (cost and income), usability (skills and literacy) and dependency (awareness of existing digital services, personal well-being) on digital technologies being leveraged to realize social safety programmes for older people. Its findings, for example, show an intricate relationship between older people’s digital capabilities regarding access to cash transfers and eHealth services and their ability to afford and use smartphones.

Overall, it is shown that higher digital capabilities of policy targets and positive societal attitudes toward digital platforms employed in policy implementation could improve effective ‘public policy digitalization’ designs. This article’s findings unpack the emerging trend in recent policy studies (e.g., see Kaihlanen et al., 2022; Lolich and Timonen, 2022 for cases of Finland and Ireland), showing that older people (mainly 65 and above), given their low energy (cognitive decline and low self-efficacy) and levels of technological literacy, experience receding capabilities in public service delivery access (also see Kania-Lundholm and Torres, 2015 in case of Sweden, etc.).

This receding capability may negatively impact policy outcomes if not considered in the policy design during the digitalization of social protection programmes for older persons. As such, findings on Kenyan experiences add critical insights into emerging issues of digital inequalities. Also, they precisely unpack Africa’s already burgeoning policy digitalization debate as aspired by the *Digital Transformation Strategy for Africa (2020-2030)* and national policies. Within governments’ broader e-government and digitalization, more intentional Information Communication and Technology (ICT) policies have been developed recently to ensure correct planning and implementation of social policies, including medical support and health services across Africa. *The Kenya National Digital Master Plan 2022-2032*, for example, provides an elaborate framework for policy digitalization and demonstrates current efforts across Africa to leverage digital technologies to improve human living conditions sustainably. This paper’s discussion is anchored on the following question: *How do older peoples’ digital capabilities influence their uptake of digital technologies in implementing social safety net programs?* The preceding sections are organized as follows: the methods section presents the policy context of social protection programmes for older people, data, discussions and the conclusion.

Methods

The Kenyan social safety net policy context: e-payments in older persons cash transfer

The social safety net policy digitalization in Kenya is anchored on the National Safety Net Program or policy design with three components: social assistance, social security and Health insurance. There are five cash transfer programs under Social Assistance (also currently framed as Inua Jamii, a Kiswahili term for uplifting society). These include the Urban Food Subsidy Programme, Older Persons Cash Transfer, Hunger Safety Net Program, Cash Transfer for Orphans and Vulnerable Children and Cash Transfer for Persons with Severe Disabilities.

The Older Persons Cash Transfer (OPCT) began in 2007/2008 and *benefits residents of the selected areas or sub-counties aged 65 or older who are poor and do not receive any other grant*. The OPCT nationwide beneficiaries are now a million persons aged 65 and above. In 2018, the Auditor General indicated that "the OPCT nationwide payments reports revealed that the rate of unpaid beneficiaries/amounts had been relatively increasing as more beneficiaries are enrolled on the program" (Republic of Kenya, 2018:v). And the government "has progressively increased financial resources for the program's expansion from Kshs.1.5 billion (11 million USD) in 2012/2013, Kshs. 2.5 billion in 2013/2014, Kshs. 5 billion (million USD) in 2014/2015 and Kshs. 7.3 (approximately 7 million USD) billion in 2015/2016" (ibid:1). As of the 2019/2020 financial year, the budget allocation was Ksh. 5.8 billion will likely increase in the coming years, including the monthly amount paid out, currently Ksh—2000 (20 USD).

The mobile payments (e-Payments or mobile money service) or electronic payment system's primary objective in Kenya is to provide direct financial assistance to homes with older persons living in poverty *via* mobile money transfers (*Airtel Money* and *Mpesa*). The move is to improve the living circumstances of older people. Its immediate goal is to reduce extreme poverty and enhance participation in development projects (Republic of Kenya, 2011). The primary objective of electronic payment programs for older people is to reduce widespread poverty among these individuals.

The government introduced an integrated payment module within a single registry for social protection programmes to enhance payment to older persons. This was to consolidate beneficiary information, increase accountability, reduce double registration, and enable efficient payment to beneficiaries to cover five cash transfer programmes in Kenya. The single registry was integrated with e-payments systems to make transactions more secure through e-wallet systems hosted by mobile companies, e.g., Safaricom and Airtel. The payment infrastructure is integrated with the National

Population Registry (IPRS) database, where verification and validation are done against enrollments, payments, transfer of registration during payments and accounts opening for older persons (Republic of Kenya, 2011).

Registration to the system is coordinated at the *Inua Jamii* cash transfer programme, which acts as a one-stop shop registration facility for older persons. The system provides a platform for opening a personal bank account integrated with a mobile payment cash e-wallet to access money digitally every two months through mobile phones. Since it is widely considered that most of the rural population lacks access to phones, they are also given payment cards that can be used to visit registered payment banks to access cash physically.

In addition, beneficiaries with registered mobile devices use e-payments systems through cards issued to them at *Inua Jamii* for transacting and accessing digital payments *via Airtel Money* or *Mpesa* wallets at their convenience. The integrated e-payment gateway is deemed adequate, secure, reliable and efficient for transactions. Other benefits include convenience provided to older persons, decreased technology transaction costs, efficiency and transparent transactions (Republic of Kenya, 2020).

E-Health policy in Kenya: finding a place for older persons?

Digitalizing health policy aims to provide effective, efficient, and equitable healthcare and enable people of all ages to enjoy full and happy lifestyles (United Nations, 2019). The World Health Organization considers e-health as using ICT to provide health services. Thus, adopting electronic health (e-health) infrastructures has become a global paradigm in designing health policies to attain the highest healthcare standards. The Kenyan government drafted the *National Community Health Digitization Strategy 2020-2025* to enhance policy digitalization effectively. This, among others, involves regulating and steering eHealth services (Republic of Kenya, 2021). Accordingly, Kenya Health Policy (2014-2030) was revised "to plan, design and install (ICT) infrastructure, and software for the management and delivery of essential healthcare" (the Republic of Kenya, 2019: ii).

However, Kenya's National eHealth Policy design needs to provide a disaggregated approach to tackle the specific needs of different groups, including older persons. This means that particular needs should be identified within the pillar of patient-centred healthcare services. Even so, while embedded in cross-cutting and relevant legislation due to potential regulatory complexities, Kenya's National e-Health Policy is slowly taking shape to expand healthcare to those who need it most, like older people.

The government anticipates creating an effective e-health policy at all levels of government. This policy document envisaged "that the National and County Governments will benefit from this policy since it will guide

them as they plan and budget for healthcare services at all levels of care. Moreover, this policy will accelerate the realization of Sustainable Development Goals (SDGs) and foster economic growth" (Republic of Kenya, 2019: ii). However, Kenya's "eHealth remains in its infancy due to social, economic, and technical challenges" (ibid). The Ministry of Health (MoH) further notes that.

[...] some of these challenges include the high cost of eHealth systems and innovations; low ICT literacy amongst users; lack of interoperability of eHealth systems; market fragmentation; weak regulatory framework; and possible violation of patient's privacy and confidentiality (Republic of Kenya, 2019: ii).

The Kenya eHealth Development Unit is under the Division of Monitoring and Evaluation, Health Research Development and Informatics. The Ministry of ICT should work closely with the Division. However, this relationship bears critical gaps, making it difficult to assess, monitor, and regulate eHealth systems operating in Kenya (Republic of Kenya, 2019). Generally, Kenya's health policy implementation is multi-layered, multi-organisational, and multi-actor, involving different levels of government, categories and policy frameworks or legislation. The National eHealth policy has also taken on this decentralized and multi-sectoral structure ranging from community health and district services to referral health hospitals. This could explain the tremendous increase in the uptake of eHealth systems—telemedicine, health information systems, mHealth and eLearning—since 2001. Of the four subsystems, most Kenyans use mHealth because of the expansive mobile services' geographical coverage (Odhiambo, 2015; Republic of Kenya, 2019). But challenges remain. The National eHealth policy document states that.

[...] due to infrastructure limitations, most of these [eHealth] initiatives are SMS-based platforms that focus on primary care in HIV/AIDS, MNH, and malaria. Currently, over 35 counties have at least one eHealth project, with Nairobi, Mombasa and Kisumu Counties taking the lion's share of the projects. Comparatively, peri-urban regions like Busia, Kakamega and Vihiga have a good number of eHealth (Republic of Kenya, 2019:6).

As a result, there is a need for more research to know how older persons opt to use e-health and e-payment services in Kenya and the variables influencing their choices. This paper's findings may help minimize this gap, especially in understanding cash transfer and eHealth services, which have been reported to encumber broader governance problems in Africa (e.g., Onyango, 2022; Ojong & Cochrane, 2022).

Data

Data collection sought to understand older peoples' digital capabilities and how these influence policy digitalization outcomes of safety net

programmes for them. It assessed digital health (eHealth) and e-payment, used in implementing social safety nets. The study was based on a descriptive research design, using qualitative and quantitative approaches; face-to-face (at least 60 min) and phone interview techniques were used to collect data from the Social Protection officers and older persons on various dimensions of digital capability and safety net programs' implementation outcomes. Digital capability's conceptualization was informed by the international development partners' *nine Principles for digital development*, which are being proposed for developing countries (see www.digitalprinciples.org). They include designing user-friendly technology platforms for public policy, understanding the existing ecosystem, building for sustainability, being data-driven, using open standards, data, and innovation, re-using and improving, addressing privacy and security and being collaborative.

Within the broader view of principles for digital development, this study's digital capability repertoires were crafted: functioning, affordability, dependency, and usability. The structured and open-ended questionnaires were designed to collect data unpacking these dimensions to understand policy digitalization implications in social protection policy implementation. The *functioning* looked into infrastructural factors like the availability of the Internet and device and societal attitudes; *affordability* looked into cost and income levels; *usability* looked into skills and digital literacy and levels of education; and *dependency* focused on awareness of existing digital services and personal well-being, etc. Telemedicine or mHealth studies like Kaihlanen et al. (2022) identify these digital capability repertoires as critical implementation determinants of health policies for vulnerable populations like older persons.

The primary data collection was done in two phases, in addition to continuous documentary analysis of secondary data sources. The first phase was between January and February 2022, after the government had eased restrictions on movement and associations due to COVID-19 protocols. Due to the few respondents (25) recorded during this phase, follow-up data collection and interviews were conducted between June and July 2023 to get a reasonable sample size for the targeted group. An additional 61 respondents were reached, leading to 86 respondents in total. During the follow-up interviews, 5 Social Protection Managers working in the social safety programs were interviewed through one-on-one virtual platforms to get their perspectives. The study targeted only those registered to benefit from the social safety net programs cash transfers program funded with the support of tax-financed social assistance schemes in the form of digital cash transfers (non-contributory schemes financed by taxes).

Respondents were drawn from both urban and rural settings. The study was conducted in an urban setting in Nairobi County, specifically Makadara

Sub-County. The additional data on urban respondents included the following sub-counties in Nairobi, Embakasi South, with 12 surveys and 3 interviews; Embakasi West, with 16 respondents surveyed and 5 interviewed and additional respondents from Makadara Sub-County, with 11 respondents being surveyed and 2 interviews. At the same time, rural data was collected from Kisumu County, Nyakach Sub-County. The preference for the four regions was informed by vibrant networks formed by older persons and a high record of registrations experienced in accessing social protection programs in respective locations. The component of urban and rural settings was also considered an essential criterion in understanding the technological implications and behavior of those residing in different geographical areas.

Considering the level of advanced age of study participants, data collection instruments were set up into questionnaire surveys and one-on-one interviews. Questionnaires and interview questions were captured using the digital capability constructs to realize the study's objectives. To ensure consistency, clarity and in consideration of the number of respondents, data collection, distribution, administration, and interviews were personally administered by authors in the selected geographical areas. The potential participant's list was retrieved from both locations' sub-county social protection local registry offices. All eligible and potential participants with telephone contacts were interviewed by phone. Those uncomfortable with face-to-face interviews because of COVID-19 protocols or personal reasons were dropped.

The structured survey questionnaires were mainly structured using a Likert scale of (strongly agreed (5), agreed (4), neither agreed nor disagreed (3), disagreed (2) and strongly disagreed (1)), while others were open-ended. Social protection managers were purposively sampled since they directly implemented social safety net programs for older people at the sub-county, county and national levels. Open-ended interview questions were administered to them for a response. Random sampling was done to identify the participants from lists of older people provided at the sub-county offices. In addition, a snowballing sampling technique was employed to target social safety net registered respondents, especially in rural areas, to enhance participation in the study. Among the 61 surveyed respondents, 19 were female, and 42 were male. 9 females and 11 males were interviewed for personal interviews, respectively. From the list of managers interviewed, 4 were female, while 1 was male. The [Table 1](#) below shows the selected samples for both urban and rural respondents.

Data analysis

Qualitative interviews were recorded, later transcribed, and analyzed using narrative and thematic analyses to capture the conversations'

Table 1. List of respondents.

Gender	Questionnaire survey		One-on-one interviews	
	Rural	Urban	Urban	Rural
Male respondents	19	23	4	7
Female respondents	9	10	3	6
Social Protection Managers (online interviews)	0	0	5	0

trends. The consent was requested before the recordings were conducted. The recording assisted in keeping pace with the respondents and following up on any missing data from the transcriptions. The recordings and transcriptions from all the interviews were interpreted to inform findings as per the questions and variables framing. Furthermore, secondary data were analyzed to generate multiple sources of evidence for this study to establish a chain of evidence from start to end. These secondary sources—statutory documents, policy directives and policy briefs—were used to corroborate the findings from the respondents to enhance qualitative recommendations. This focused on functioning, affordability, usability and dependency on digital technology among the older persons enrolled in social safety net programs in Kenya.

Quantitative data were analyzed using SPSS version 27 to generate findings in statistical inferences and descriptive and determine the relationships between digital capability components and eHealth and ePayment tools in social protection implementation. Further, the study adopted correlation analysis to conduct the inferential analysis to measure the strength of the relationship between variables and the direction of the relationship as per the study's objectives. SPSS, in this case, was preferred due to its ability to analyze diverse inter-relationship between study variables, including developing in-depth critical analysis. The next section presents the findings before their discussion.

Results

The findings presented in this section demonstrate an interplay of digital capability dimensions in influencing policy digitalization—digital payment (e-payment) and digital health (mHealth) outcomes in Kenya, as shown below.

Perceived usability and user experience

User experience relates to technology skills and literacy to access e-Payments and e-Health. Respondents were asked about their perception of the use of technology in social safety net programmes. Some respondents

believed they had good user experience due to their technical knowledge in navigating internet services and accessing e-Payments and e-Health services. However, there were indications that usability experience may not be favorable for first-timers due to a lack of basic knowledge and skills in operating technology and accessing the Internet for eHealth delivery. Some respondents also observed that most of the aged population have cognitive problems related to poor eyesight and low memory, hence finding it difficult to adopt the technology. A manager noted that.

We realised that the adoption of eHealth and e-payment could not be achieved easily due to complexities among older persons, which are attributed to low computer literacy, cognitive deficits, technophobia, cognitive impairments, impaired visions and poor hearing capabilities (SP_O5: 19th June 2023_Social Protection Manager).

Despite outstanding technical difficulties, there were significant positive perceptions toward e-payment and e-Health as policy tools. Respondents noted that it is good to adopt technology, especially for e-Payments and e-Health services for the older population. However, they affirmed that operating the system would be difficult due to technicalities and complexities, including a lack of support on how to use it. Others also expressed optimism that accessing social safety net services through phones has made social protection policies more accessible since they can get monthly payment notifications and access their statement for health insurance funds that are contributed monthly.

Still, most older people in rural areas have negative attitudes, low user capabilities and perceptions toward adopting e-payments and e-Health services. This relates to their inability to use effectively and afford smartphones and internet services effectively. Thus, from the user's side, the low usability of these safety net policy platforms could be linked to users' inability to afford relevant devices to access them. Generally, smartphones and related technology devices are costly for most rural residents. It came out that most rural dwellers do not have smartphone devices or internet services. More specifically, most respondents from rural areas (81%) reported a need for digital resources like proper use and knowledge of internet services for e-Health and e-Payments. Besides, older people in rural areas are unaware of how to activate and purchase data for internet usage. A rural respondent stated that:

I have never interacted with an Internet-enabled mobile phone or used and learnt how to operate smartphones to access eHealth service. When the government advised us to register for social assistance during COVID-19, my Kin was able to purchase me a simple Internet-enabled phone. He also taught me how to use it to access

mobile money and pay for any required health services since we were not allowed to move around due to the pandemic (DD _02: February 1, 2022_Rural respondent).

A Social Protection Manager further emphasized that;

In rural areas, there was some resistance to rolling out the platforms due to user unfriendliness of the platform's lack of smartphones, among other systematic technological factors like the inability to use or access the Internet. Poor user interfaces created frustrations and discouraged digital engagements by older citizens. Even though we used tablets with big screens for training, I noticed during the training that the platforms did not consider an elder-centred approach that focuses on the integration and physical elements of older person needs and requirements which resulted in some users becoming adamant and resistant (SP_O5: 19th June 2023_Social Protection Manager).

The study also noted that there was insignificant or low utilization of feature phones to access e-payment and e-health due to their limited capability. In particular, USSD-enabled feature phones could only conduct queries, inform individuals about their accounts status through SMS, and help one remit payments through USSD codes. The web-based self-care portal, which enables individuals to access e-payment statements and e-Health records, cannot be accessed through a simple feature phone, complicating the user capability experiences. This may imply low subscriptions to e-Health and e-Payment services by most rural dwellers, unlike in urban areas. An equally noteworthy finding from one of the respondents is that;

During enrolment for safety net programs, we are advised to buy smartphones to access eHealth and e-payment platforms. However, the Social Protection officers never take their time to give us orientation on how to access their services. This also happens to those who enrol when they already have smartphone devices. Even though accessing eHealth and e-payment is good for old age, more needs to be done, considering that most users need the technical know-how and skills to operate smartphones for eHealth and e-payment services. We are left to struggle and navigate how to use smartphones for e-payments and eHealth access services without assistance (DD _03: 1st Feb 2022_Urban respondent).

Relatedly, a Social Protection Manager noted that;

The platform user interface and experience failed to meet the threshold for older persons. Many of the older persons were unable to interact with the platforms unaided. They cited that the user interface of the platforms was not very friendly to navigate. Equally, older persons could not adapt quickly to the platform due to a lack of toggle features, including for the visually impaired and those with hearing problems associated with old age. We recommended that senior citizens be involved in co-design and co-creating the platforms from initiation to testing to capture their

perspectives on usability developments (SP_O1: 19th June 2023_Social Protection Manager).

Notably, most urban respondents show positive attitudes toward technology functionality and have the needed digital skills and resources. This was attributed to perceived social pressures to use technology by older people, social pressure from the youthful population in urban centers, and internet availability. The respondent noted that;

Initially, I was not interested in buying smartphones to access e-Health and e-Payment services under the social protection safety net. With little income, I purchased a cheap smartphone that connects to the Internet, which I usually use to receive government payment notifications and remit my monthly health insurance fund contributions for health coverage (DD_02: February 1 2022_Urban respondent).

Although other urban respondents evaluated internet services more negatively based on the perceived difficulty in use and technophobia, there was an indication that they accessed e-Payments services, especially the safety net monthly contribution from someone they lived with, particularly their children or relatives registered to e-Payment services. Besides offering insights into usability contours, these findings also contextualize the role of other digital capability dimensions in understanding how eHealth and e-payments direct social net policy digitalization outcomes, as elaborated in different findings.

Functionality and access to e-Health

The study further interrogated social perceptions based on policy digitalization opportunities and the capability of persons to access e-health services, as shown in [Table 2](#) below. The study mapped out individual responses using a Likert scale of (strongly agreed (5), agreed (4), neither agreed nor disagreed (3), disagreed (2) and strongly disagreed (1) based on whether respondents were residing in urban or rural areas.

Table 2. Understanding the opportunity and capability of persons to access e-Health.

	N	Mean	Std. Deviation
1. The Internet is a reliable resource to help me access health services.	61	4.39	.649
2. I have a smartphone to access internet services for seeking health services	61	1.23	.994
3. I have full access to the Internet throughout	61	4.72	.649
4. I have used the Internet for the past 3 months to access health services and information.	61	1.13	1.206
5. I have personal skills and confidence in the use of the Internet and smartphone for accessing health services	61	1.31	.979
6. Smartphones and the Internet are expensive for accessing health information and services	61	4.21	.643
7. I receive support on how to use the Internet and smartphone to access-health services	61	4.39	.647

Based on [Table 2](#), the respondents agreed that the Internet is a reliable resource that helps them access health services ($M=4.39$; $SD = 0.649$). However, smartphones and the Internet are expensive for accessing health information and e-Payment services ($M=4.21$; $SD = 0.643$). They receive little support using the Internet and smartphones to access health services ($M=4.39$; $SD= 0.649$). The indications are that most respondents do not have smartphones to access internet services ($M=1.23$; $SD = 0.994$), including e-health services. The respondents, however, strongly disagreed that they had used the Internet for the past three months to access health services and related information ($M=1.13$; $SD = 1.206$. And that they have personal skills and confidence in using the Internet and smartphone for accessing health services (Mean = 1.31; $SD = 0.979$).

Following these findings, the study looked further into affordability dimensions, exploring affordability and choice of adopting the Internet and smartphones by older persons.

As summarized in [Table 3](#) above, most respondents indicated that they could rarely purchase smartphones from their income or receive ($M=2.28$; $SD 0.973$) and afford internet services ($M=2.03$; $SD 0.801$). Many respondents also said they could not access e-Health services ($M=2.13$; $SD = 0.792$). Therefore, a correlation between income levels and smartphone ownership was conducted to determine affordability based on income levels. Limited economic opportunities, affordability and availability of basic phones in rural areas and the lack of Internet infrastructure in rural areas could contribute to the lack of ownership of smartphone devices despite social safety net policy programs. Even though smartphone ownership was not prominent with older persons in rural areas, at least there was some ownership of basic phones with voice calls and message sending that are not connected to the Internet and rely on mobile networks to relay communications.

Table 3. Affordability.

Statements	N	Mean	SD
1. I can easily purchase a smartphone from my resources	61	2.28	.973
2. I can easily purchase and pay for Internet	61	2.03	.801
3. I can easily afford access to health service	61	2.13	.792
4. I cannot survive without a smartphone and the Internet	61	1.83	.683

Table 4. Correlation between level of income and smartphone ownership.

		Smartphone ownership	Level of income
Smartphone Ownership	Pearson Correlation	1	.617**
	Sig. (2-tailed)		.000
	N	61	61
Level of income	Pearson Correlation	.617**	1
	Sig. (2-tailed)	.000	
	N	61	61

** . Correlation is significant at the 0.05 level (2-tailed).

Table 5. Level of education and e-health.

		Level of education	e-health
Level of education	Pearson Correlation	1	.478**
	Sig. (2-tailed)		.000
	N	61	326
e-health	Pearson Correlation	.478**	1
	Sig. (2-tailed)	.000	
	N	61	61

** . Correlation is significant at the 0.05 level (2-tailed).
Source: Authors.

The findings summarized in [Table 4](#) indicate a positive Pearson correlation of .617 (or 61.7%) between the level of income and Smartphone Ownership. The significance level is .000, which implies that the relationship between smartphone ownership and income level is significant. Therefore, it is likely that a relationship exists between these two variables in the population and also the sample. Thus, the study established a substantial connection between smartphone ownership and the income level of older persons.

Generally, smartphones cost more, so only individuals with higher income levels can afford them. The findings of this study are consistent with those of the Pew Research Center (2017), which revealed that income level determines smartphone ownership. Pew Research Center's (2017) survey established that 87% of senior citizens in households earning \$75,000 or more had smartphones and could afford broadband, compared with just 27% of seniors with annual household incomes below \$30,000. Educational differences follow a similar pattern, with college graduates adopting technology at much higher rates than seniors with lower levels of formal education.

When follow-up questions were asked during the interviews from managers whether some successes and experiences have been met toward accessing social safety net programs through technology for older people, there were mixed responses to successes amid challenges. In this study, we will discuss challenges in the next section and display some of the successes as responded to by the managers. For instance;

The Ministry of Labor and Social Services facilitated the integration of eHealth and e-payment systems to enable older persons to register for easy identification. Biometric registration systems were also integrated into the process, promoting ease of registration and identification, especially during payment and health visits (SP_O3: 22nd June 2023_Social Protection Manager).

To support the eHealth and epayment infrastructure for older persons, it was reported that;

The government and World Food Programme jointly participated in rolling out the digitalisation of eHealth and e-payment programmes for older persons in an

ICT-enabled single registry process, including digital skills training on social safety net programmes targeting 500,000 older persons. The government also created a data centre to manage all data in single registry databases for all securely and supplied 1,000 tablets which were believed to have bigger and wider screens for training across the sub-counties (SP_O2: 14th June 2023_Social Protection Manager).

Through government programmes to digitally include older persons in accessing digital services, the set-up of online registration and identification systems has improved the management of older person's needs, including preventing impersonation, fraud and data privacy for beneficiaries. Online registrations have also enhanced older person's access to eHealth platforms using the Internet and mobile phones. Local MPESA and Airtel payment gateway has also been integrated with eHealth platforms and a single registry for social safety net where ePayments can be used for monthly contributions making it convenient and improving access to services (Republic of Kenya, 2021).

Therefore, the opportunity and capability of the respondents to use smartphone and internet services to drive e-Health services are limited. To further understand the reliability of the Internet as a reliable source for health and e-payment access, Social Protection Managers stated that adoption had been a challenge due to the techno-digital divide caused by the skills gap among older persons. Based on the findings concerning internet reliability and availability for use in eHealth and ePayments, it was noted that internet reliability still needs to be improved due to infrastructural and connectivity problems in rural areas compared to urban areas. Furthermore, older persons across the divide could not comprehend using the Internet for eHealth due to technological skills deficit making usage minimal and low. In the interview response from the Social Protection Managers, it was clear that.

Internet usage and utilisation for eHealth and e-payment systems have yet to be institutionalised and appropriately standardised to be used by older persons across the country. Internet inequality still exists for those coming from rural areas with limited internet infrastructure and connectivity. COVID-19 almost ignited the rollout to full utilisation and digital migration into e-payment and eHealth systems. However, challenges concerning connectivity, skills gaps and lack of devices among the older persons hampered the successful rollout (SP_O3: 22nd June 2023_Social Protection Manager).

It was also noted by another respondent that;

Internet reliability improved the experience for older persons during COVID-19 in accessing eHealth services, including enabling them to register for eHealth platforms, enrolment for social safety net programmes for older persons at the single

registry system, and even allowing remittance of monthly National Social Health Insurance cover through e-payment systems (SP_O5: 19th June 2023_Social Protection Manager).

As to whether they received support on using the Internet and smartphone to access e-health and ePayments platforms, the majority indicated that they had received little support, as shown in Table 2 above ($M=4.39$, $SD = 0.647$). On the contrary, as the Social Protection Managers alluded to, the ministry rolled out an ambitious digital footprint and trained all sector officers on digital programmes, including training for older persons in all regions on accessing eHealth and conducting e-payment services. However, institutionalization and training aspects were not sustained beyond COVID-19 due to resource limitations, lack of standardized training curriculum and budgeting. Experiences noted during the training included the inability of older people and unwillingness or social distrust attitudes to adapt to using digital tools even to register and be identified in the single registry platforms. Individualized training has been conducted for those seeking assistance using smartphones to access eHealth services and other basic phones for ePayments.

We facilitated training for older persons on social safety net programmes, including accessing eHealth services, navigation of eHealth platforms, the social safety net registry platforms and ePayments for national health insurance cover for those with basic USSD phones. However, there needed to be a standardised training toolkit or curriculum that specified training for older persons on how they should be able to access eHealth and ePayments services and platforms. (SP_O1: 19th June 2023_Social Protection Manager).

Another respondent noted that;

Social Protection officials offered intermittent training to older persons, particularly to improve their digital literacy and skills to enable them to independently access eHealth services and make ePayments through MPESA and Airtel platforms. In some selected cases in the rural areas, training was not conducted due to limited connectivity of the internet services and a limited number of local trainers (SP_O2: 14th June 2023_Social Protection Manager).

To better bring out the arguments, the study interrogated if the level of education has any relation to access to eHealth, as shown in Table 5 below.

From the data summarized in Table 5, a positive correlation coefficient of .478 (or 47.8%) was established between the level of education and e-health among senior citizens in Kenya. The significance level is .000, which implies that the relationship between education levels and e-health

is highly significant. Therefore, it is likely that a relationship exists between these two variables in the population and the sample.

The capability of older persons to access e-payments

The respondents strongly agreed that: the payments received from the government are easy to access by phone ($M=4.64$; $SD = 0.678$). This is summarized in [Table 6](#) below. All beneficiaries are registered into social safety net programmes only if they subscribe to mobile payment services. The majority also noted that they have acquired skills and knowledge on how to access payments by phone ($M=4.62$; $SD = 0.797$) and that more than the money received from the government is needed to cater for their needs ($M=4.48$; $SD = 0.976$). The majority also disagreed that they had used the Internet for the past three months to access health services and information ($M=1.13$; $SD = 1.298$).

In a follow-up response, one of the urban respondents indicated that;

Inasmuch as I have unlimited access to Internet services and a smartphone for eHealth services, I accustomed myself to traditional access to health services and have never liked the idea of accessing services through my phone. I also feel insecure about technology-based phone services, especially privacy and confidentiality issues. In addition, my skill level and technology know-how is limited to basic access, which might limit my capability and confidence to use eHealth services adequately (DD_06: 1st Feb 2022_Urban respondent).

Based on the findings summarized in [Table 7](#), it can be observed that there was a positive Pearson correlation of .589 (or 58.9%) between the level of education and e-payments among the aged population in safety nets. The significance level is .000, which implies that the relationship between the level of education and e-payment is highly significant. Therefore, it is likely that a relationship exists between these two variables in the population and also the sample. The study established a meaningful relationship between internet usage, e-health access and e-payment. The level of education influences the ability of senior citizens to use technological devices such as phones and computers that are majorly used for e-payment and e-health.

Table 6. Understanding the opportunity and capability of old persons to access e-payments.

	N	Mean	Std. Deviation
1. The payments received from the government are easy to access through phone	61	4.64	.678
2. I have full skills and knowledge of how to access payments from my phone	61	4.62	.797
3. The money received from the government is enough to cater for my needs	61	4.48	0.976
4. I have used the Internet for the past three months to access health services and information.	61	1.13	1.298

The dependency of older persons

The findings show that older people's dependency on using e-payment and e-Health platforms resides in their pre-determined negative attitudes toward digital platforms and levels of education. Perceived efficacy in using technological devices to access the platforms was cited as a critical barrier. In a follow-up response, one of the managers said that;

Many older persons who underwent training had difficulties using technology due to fear of incompetence, negative attitudes towards technology adoption and a general lack of total interest. Few were interested and had a higher desire to learn to engage with the platforms, including access to full registration for eHealth services (SP_O3: 22nd June 2023_Social Protection Manager).

For example, when older people were asked about challenges and barriers experienced in accessing social safety net programs through technology, most respondents from rural settings cited lower self-efficacy, technology anxiety, stress and difficulty in internet use. These also explained why they did not engage in e-health and e-Payments platforms. Also, functional barriers related to the platform design complexities and user experience slowed buy-in by older persons. However, they also noted the ease of use in the e-payment platform rather than the eHealth platform. The Social Protection Manager cited that older persons had difficulties accessing eHealth platforms, including navigations. Similarly, physical and cognitive abilities influence technology adoption.

In addition, the aged population with low levels of education usually have to be assisted while using e-payment and e-health technologies. Generally, new technological innovations such as e-payments and e-health are complex. They require people to have some form of education to use them. Furthermore, this study assessed older people's usage and dependability regarding living standards and digital skills.

Based on the data presented in [Table 8](#), the respondents disagreed that they could easily access smartphones (Mean = 1.48; SD = 0.964) and receive support/training from the government to access health services and e-payment services (Mean = 1.23; SD = 0.584). However, the respondents disagreed that they have full skills and knowledge of accessing Internet platforms from the phone (Mean = 1.08; SD = 1.299) and have

Table 7. The level of education and adoption of e-payments among the old persons.

		Level of education	e-payments
Level of education	Pearson Correlation	1	.589**
	Sig. (2-tailed)		.000
	N	61	61
e-payments	Pearson Correlation	.589**	1
	Sig. (2-tailed)	.000	
	N	61	61

** . Correlation is significant at the 0.05 level (2-tailed).

Table 8. Usage and dependability.

	N	Mean	SD
1. I can easily access a smartphone	61	1.48	.964
2. I have full skills and knowledge of how to access Internet platforms from my phone	61	1.98	.798
3. I have skills in accessing and using the Internet	61	1.08	1.299
4. I have received support/training from the government to access eHealth services and e-payment services	61	1.23	.584

skills to access and use the Internet (Mean = 4.24; SD = 0.806). This statement shows that older people are disadvantaged in accessing e-health and e-payments provided by technological progress. The lack of digital technology training for older people creates technological gaps and inter-generational disconnect, resulting in digital isolation and exclusion.

Social protection managers alluded that older persons residing in rural and urban areas need more personal skills and confidence in using smartphones and the Internet to access digital services from eHealth and ePayments. It was reported that;

Older people rarely interact with digital technology tools, including the Internet, since they lack skills in operating devices. Most platforms' user interfaces and design interactions are not user-centred for old age, making navigating the systems difficult. For example, the single registry platform where all older persons needed to register and identify themselves proved challenging (SP_O2: 14th June 2023_Social Protection Manager).

To further understand the support the government has offered older persons toward eHealth and e-payment access, Social Protection officials indicated that through the Ministry of Labor and Social Services, there had been concerted efforts to digitalize social safety net programmes with support from World Food Programmes and other stakeholders. However, no concrete sustainable support or training programmes are scheduled for senior citizens. Furthermore, it was noted that there are no standard guidelines by the government for training older people in accessing eHealth and e-payment services. A manager stated that;

The Ministry of Labour and Social Services provided training support by dedicating social protection officers within their sub-counties to encourage, motivate and help address the lack of basic technical skills in accessing the eHealth and e-payment platforms. In some instances where the helper accompanied the older persons, the training was extended so they could be informally trained or helped by those close to them (SP_O5: 19th June 2023_Social Protection Manager).

Similarly, other support to older persons in accessing eHealth and ePayments recorded included;

e-Health and e-payment literacy were boosted by the government provision of 1,000 tablets that were dispatched for registration of 500,000 and training of older persons at the national level cascaded across the sub-counties. During the training, older people were also encouraged to purchase

Table 9. Internet usage and gender.

		Gender	Internet Usage
Gender	Pearson Correlation	1	.537**
	Sig. (2-tailed)		.000
	N	61	61
Internet Usage	Pearson Correlation	.537**	1
	Sig. (2-tailed)	.000	
	N	61	61

** . Correlation is significant at the 0.05 level (2-tailed).

smartphones with bigger screens to improve their navigation and user experience in accessing eHealth platforms. (SP_O5: 19th June 2023_Social Protection Manager).

The study further looked into gender and adoption of internet usage, e-health and e-payments services, as shown in [Table 9](#) below.

The data summarized in [Table 9](#) indicate a positive Pearson correlation of .537 (or 53.7%) between internet usage and gender. The significance level is .000, which implies that the relationship between gender and internet usage is highly significant. Therefore, a connection is likely between these variables in the population and the sample. Even though the number of women interviewed was 28% out of the total population, a relatively significant relationship exists between internet use and gender.

In this case, the study did not further establish the relationship between women and men in rural and urban dwellings. Although, it found that males and older male persons, for that matter, are more competent with Internet and computer technologies than females. However, this changes as women increasingly use the Internet. Functionality levels of the eHealth and e-payment services create a challenge in their use by older persons because the digital literacy and technical skills level of the aged person is lower than that of the youth.

The findings from the study also noted that older people experience functionality challenges while employing smartphone technology in their eHealth and e-payment due to changes in cognitive and physical health conditions. Both urban and rural respondents pointed out this attribute. Therefore, the location and environment in which older people reside directly influence their skills and internet access. From the analysis, the internet access barrier was cited as one of the impediments to accessing eHealth and ePayments services in rural and remote locations.

Older people's poor health and digital capability

Most of the older persons indicated having poor eyesight for using the Internet and phone technology to drive e-payments and e-Health services. Generally, a lack of digital literacy was the main reason for not embracing phone technology for accessing e-Health and e-Payments, especially in rural areas. During the interview, respondents indicated that;

With old age comes poor health and loss of eyesight. Therefore, I am unable to use my phone properly. In most cases, the access to my phone, including withdrawing monthly payments from the social safety net program, is aided by my grandchild. Even though I am now a beneficiary of the program, it took some time before I registered since I could not operate the phone device due to poor eyesight and lack of operational and technical competence. (DD_01: January 26, 2022).

Another respondent indicated that;

Digital technology uses, and complexity among older persons can be attributed to low levels of computer literacy, cognitive deficits, technological phobia, poor user interface and lack of perceived usefulness of technological platforms (SP_O2: 14th June 2023_Social Protection Manager).

The respondents evaluated internet services more negatively based on the perceived difficulty in use and technophobia arising from e-payment and e-Health designs in Kenya.

Discussion

The above findings offer insights into opportunities, challenges and barriers underpinning policy digitalization as experienced in accessing eHealth and ePayments for older persons in Kenya. These were categorized and thematised around broader digital capability constructs, showing individual (intrinsic and extrinsic) challenges, functionality and usage, technical skills, location and environment (urban and rural), technological support, and affordability.

Quantitative surveys reveal intrinsic barriers around physical aging, intellectual ability, impaired hearing, and sight limitations among older persons. As a result, this affects older people's participation in eHealth and ePayments platforms. These findings draw attention to a few critical issues and insights into policy digitalization for policymakers attempting to achieve values like efficiency and effectiveness in policy implementation. These are discussed as follows.

Designing proper training for vulnerable persons on digital policy tools

This study has shown that policy digitalization should embody appropriate designs, and the government should allocate substantial resources to train older persons and other vulnerable groups on digital skills and better health narratives around technology use. Otherwise, as policy targets, older persons may need help identifying opportunities and digital resources available to them to make social safety net programmes work for them effectively. In light of Sen's (1999) capability approach, appropriate digital training and policy designs for older persons could be an essential dimension of ensuring

social connections and generating a more comprehensive understanding for improving personal capability, as aspired in the social protection policies.

As established by this study, the isolation of older persons, lack of digital interactions and technological disconnect may result in a digital divide, especially for senior citizens. As in other developing countries, the emerging policy inequality in social safety net programs in Kenya can be linked to infrastructural deficiencies between the urban and rural locations and capabilities between age groups and gender (see Carlsson & Facht, 2002). This study has shown that while policy digitalization presents an opportunity to relook into the digital policy target amongst the population, there is a need for more intentional investments in training and developing appropriate digital tool designs that would address the specific needs of the policy targets. These designs and training should also focus on socio-economic and cultural geographies that may underly influence the uptake of policy digitalization on the users (see Amougou Mbarga & Tsowa, 2023).

Policy digitalization should come with a practical roadmap for changing user attitudes of older people

This study reveals significant and systematic gaps in usability and user experience for using digital technology in urban and rural areas for e-Payment and e-Health. Internet access, smartphone access, usage and the perception and attitudes realistically confirm findings in the literature that technology adoption and use of the smartphone for mHealth is associated with computer anxiety, smartphone self-efficacy, and higher cognitive ability, primarily focusing on younger populations than older people.

Therefore, in building a positive relationship with digital policy platforms, policy digitalization targeting older persons should intentionally develop clear training and awareness creation roadmaps. This study showed an existing relationship between the perception of technology usefulness and technology readiness. These findings corroborate those by The Center for Research and Education on aging and Technology Enhancement, where it was revealed that older persons (60-91 years) were less receptive to technology use, including internet and computer adoption, because of underlying attitudes and incapacibilities. The study's findings were attributed to cognitive decline, usability barriers, perceived less comfort, low self-efficacy and technological anxiety.

Similarly, as shown in other studies like Sixsmith, Horst, Simeonov, and Mihailidis (2022) in Canada and Vaportzis, Clausen, and Gow (2017) in the United Kingdom, older people in Kenya also demonstrated low-self efficacy associated with their age, which has significantly predicted lower use of mHealth and e-Payment as social safety net policy tools. Such a roadmap should also consider increased investments and subsidies to older

persons to improve access to digital resources like smartphones to ensure affordability, dependency, and functioning. These are equally dependent on cognitive ability, quality of life, interpersonal variations and digital skills.

A study conducted by Wilson et al. (2021) on free and low-cost electronic equipment offered to older persons for accessing eHealth found increased use of technology devices when access devices are freely available. In short, the results revealed that attitudes toward technology, ease of use, and perceived social pressures likely contribute to older people adopting smartphones for e-Health and e-Payments.

These findings agree with Lin, Shih, Shih, and Sher (2007) Technology, Readiness and Acceptance Model (TRAM), whose findings imply that those who view themselves as technologically inferior delay or refuse technology adoption by devaluating the usefulness and importance of these services (also see, Tambotoh, Manuputty, & Banunaek, 2015). The main implication is the need for policymakers to involve policy targets like older persons in the co-development and co-creation of digital tools like eHealth and e-payment platforms in all stages to ensure barrier-free usage, including enhancing accessibility and usefulness (see, Wilson et al. 2021).

Policy digitalization should work more with disaggregated data focusing on the specific needs of older people

Disaggregation of demographic factors and data based on rural or urban regions, age and gender matters is essential for effective policy digitalization. This study's findings show that social differences and influences affect the perceived usefulness and ease of digital policy tools depending on where the respondent comes from. A database of disaggregated data should identify hindrances that come with gender, location, and age in accessing public policy. While studying the digitalization of agricultural policy in Tanzania, Mwaijande (2023) notes that digitalization needs more informed decisions based on facts validated on digital platforms to make these platforms more accessible. Although, this also needs policymakers to have the capacity to do so, pointing to institutional capacity issues to design appropriate digital platforms to achieve policy goals (Smidt & Jokonya, 2023).

Even though older people may face challenges in technological adoption toward eHealth and e-payment access in Kenya, they are also developing positive feelings about the benefits of technology and the Internet. This could have been partly because of the training conducted by the Social Protection officials or because of the benefits and convenience these digital platforms offer users. This was especially so during the pandemic to support their wellness, health, and communication needs.

This confirms a positive relationship between the perception of technology usefulness and technology readiness, albeit in the longer term. However,

Sixsmith et al. (2022) projected that while COVID-19 might have positively impacted the policy digitalization process, especially concerning older persons (above 65) on accessing, utilizing and their attitudes toward technology, many still feel that there are underlying and systematic challenges associated with social pressures and economic deprivation toward adoption. More disaggregated data is well positioned to provide a more informed course of action on resolving these social pressures and economic deprivation.

Policy digitalization should consider the literacy levels of the policy target

Studies like Van Deursen and Helsper (2015) highlight that insufficient skills and low ICT awareness significantly limit efficiency and skills in using technology among older persons (Van Dijk, 2006; Mutula, 2005). This study revealed that those with higher education showed improved technology skills, access and usage patterns. These findings further relate to the outcomes of the individual economic, social and enhanced distinctions in digital engagements toward e-payment and eHealth. The study findings on the ability to purchase a smartphone and access the Internet are considered a socio-economic advantage related to productive access and utilization of e-payment. In contrast, factors contributing to ill-health and poor cognitive ability are associated with slow progress in internet adoption (DiMaggio & Hargittai, 2001).

Therefore, policy digitalization should additionally consider the literacy demographics of digital tools and whether the targeted populations require some levels to use them effectively. This study shows how such designs are effective if they also consider income capabilities that are linked to literacy abilities or practical assistance, Internet access, smartphone use and ownership by older persons as beneficiaries of cash transfers and eHealth services. If not considered in policy instrumentation, these variables may reinforce emerging digital inequalities in most developing contexts that also deal with issues discussed here.

Conclusion

This study's findings show a profound need for more robust and policy target-sensitive efforts to overcome policy digitalization challenges, especially those arising from structural inequalities or group capability deficits that underpin policy digitalization pathways. If well integrated into policy design, digital capability dimensions covered in this study could assist with curbing the reproduction of similar inequalities in the digital policy designs used for implementing social safety nets or related poverty reduction policies for vulnerable persons. Countries like Kenya must simultaneously design effective policy measures and targeted budgeting for different users

of social protection policies, especially, when digital platforms are used. More importantly, these should closely conform to conditions that would embed ease of access and use to curb the side effects of policy digitalization for older persons. As shown in this study, older people, as a less tech-savvy group, may also suffer from policy exclusion due to lack of internet access and affordability or age and gender-specific challenges.

In addition, the study demonstrates the need for a more intentional budgetary allocation for digital infrastructure expansion to help improve the accessibility and affordability of the Internet for the majority. Because the digital divide seems to reside more in accessibility and affordability deficits, hindering the policy target's capabilities to benefit from the policy, heavy digital infrastructural investments could assist in achieving sustainability by leveraging digital policy tools for development. Future studies should explore further models that governments and policy digitalization stakeholders can adapt to improve the abovementioned dimensions. Such a focus would reveal much better causal relations between technology access, level of usage and kind of participation as to whether social, political, economic or institutional also have their own share in influencing functioning, affordability and dependency on digital technology. Equally, the study testing as per gender would be crucial in creating clarity and inferring policy propositions from a wider perspective.

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No potential conflict of interest was reported by the authors.

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