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The digitalisation of social protection before and since the onset of Covid-19

Opportunities, challenges and lessons

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Key messages

The response to Covid-19 accelerated the trend of increasing digitalisation of social protection delivery.

Studies from before and during the pandemic suggest that well-used technology holds potential to enhance provision for some service users, and played a notable role in rapid social protection expansion during Covid-19. It may also help reduce leakage or inclusion errors, lower costs and support improvements in programme design.

However, the evidence also suggests that - unless designed and implemented with careful mitigating measures - digitalisation may in some cases do more harm than good. Key concerns relate to potential risks and challenges of exclusion, protection and privacy violations, 'techno-solutionism' and obscured transparency and accountability.

Ultimately, technology is a tool, and its outcomes depend on the needs it is expected to meet, the goals it is deployed to pursue, and the specific ways in which it is designed and implemented. This paper offers eight lessons to help social protection actors capitalise on technology's potential in a risk-sensitive manner.

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1 Introduction

Recent years have seen rapid growth in the use of technology in social protection systems. While the pace of adoption has varied between countries, the general trend of increasing digitalisation in social protection delivery has been evident across low-, middle- and high-income countries (Barca and Hebbar, 2020; Chirchir and Barca, 2020; Masiero, 2021; Gronbach, 2020; Guven, 2019; Lindert et al., 2020; ISSA, 2019).

For service users, this has entailed a growing prevalence of online or mobile-based channels to register for programmes; bank transfers, mobile money or other electronic mechanisms to make or receive payments; and the use of phone, web or email channels to report grievances or feedback. At the back-end of service delivery, electronic databases for managing social protection caseloads are becoming more advanced (including in their interoperability with other programmes or agencies' databases). Experimentation with more nascent digital approaches is also growing, such as the application of artificial intelligence to eligibility determination or monitoring processes (Barca, 2017; Chirchir and Barca, 2020; Ohlenburg, 2020). Both front- and back-end digitalisation of social protection has been supported by wider digital government trends, notably the boom in digital (often biometric) ID systems. These digital ID systems were established in over 130 countries between 2000 and 2015, and are increasingly being linked with social protection provision, for example to verify people's identity when they access services, or to link current or potential participants' records across different datasets (Gelb and Metz, 2017).

This digitalisation trend has accelerated during the Covid-19 pandemic. Greater use of digital registration approaches was prompted by the widespread need for rapid, socially distanced enrolment into pandemic assistance programmes, including of many households who were previously excluded from the social protection system (Gentilini et al., 2020; IPC-IG, 2021). Social distancing concerns also accelerated the adoption of electronic Government to Person (G2P) payments, including shifts to digital payments where manual payments had previously been the norm; transfers via private providers where routine digital payments had previously been limited to the state bank; and increased reliance on mobile money and e-wallets alongside traditional bank transfers (Gelb and Mukherjee 2020; Merelli 2021; Gronbach, 2020; GSMA, 2021). The design of programming was also digitalised in some cases, from digital public works (in which participants could complete tasks from home using online or mobile platforms) to digital social care support (e.g. the use of remote video and audio support in place of in-person home visits) (Weber, 2020; de Miranda et al., 2021).

These Covid-related adjustments were often facilitated by temporary policy changes to promote rapid and remote financial account opening, reduced or waived financial transaction fees, and more affordable household access to phone and internet networks (Gelb and Mukherjee, 2020; Michaels, 2020; CGAP, 2020; GSMA, 2020a; Berner and Van Hemelryck, 2020).

While many of these temporary regulatory changes have now been lifted, the substantial increase in digital social protection during the pandemic looks set to remain for the long term, with many governments indicating ambitions to further digitalise delivery. Indonesia, for example, has set a goal to achieve universal coverage of its social registry by 2024 and also aspires to fully digitalise its payment mechanisms, while Brazil has expressed an intention to rely more heavily on digital applications and artificial intelligence in its single registry (Aulia and Maliki, 2021; Yamasaki and Rodopoulos, 2021). The Philippines has announced plans to expand digital G2P payments, as well as to accelerate the expansion of its digital foundational ID system and social registry (Cho et al., 2021).

This brief discusses the main opportunities (Section 2) and challenges (Section 3) associated with digital social protection, drawing on trends pre-Covid and since the onset of the pandemic, before outlining lessons (Section 4) to help social protection actors capitalise on technology's potential in a risk-sensitive manner.

2 Opportunities

Several studies on digital innovations in social protection have identified quantifiable benefits from their use, both prior to Covid-19 and in the emergency pandemic response. As outlined below, these examples illustrate the potential that well-used technology holds to help improve recipients' experience and even enhance their outcomes, while reducing programme leakage and inclusion errors, decreasing implementation costs and enabling continual improvements in programme design.

Improved recipient experience

Research has indicated the potential for well-designed and effectively delivered technology to improve recipients' experience in various ways. First, they can **save recipients time**, as illustrated by experimental evidence from Andhra Pradesh, India, where biometrically authenticated smartcard payments in the MGNREGA public works scheme led to time savings for recipients that were equal to the cost of the intervention (Muralidharan et al., 2016). For some users, they may also be **more flexible and convenient**; in Bangladesh, 79% of mothers participating in a mobile-based payments trial in the PESP scheme preferred the new approach, finding it reduced their travel and expanded their withdrawal options, as well as being easier to register (Gelb et al., 2019). Digital approaches can also **improve participants' physical safety**, by reducing theft or assault when travelling to offices or carrying physical cash from known distribution points. One US study associated digitalisation of welfare payments with a 10% decrease in the overall crime rate (Wright et al., 2014) and digital transfers are also thought to reduce female recipients' exposure to opportunistic harassment and assault (although concrete evidence of this is still limited) (Garz et al., 2020; Peterman et al., 2020; Botea et al., 2021). Digital innovations may also make programmes more **inclusive and accessible for certain users**, for example for those with physical disabilities or mobility constraints who had difficulty travelling to distant in-person registration or payment points but have good access to technology (Banks et al., 2020). Finally, digital delivery can **reduce programme delays**, as occurred in Ghana, when digitised transactions and wider use of biometrics machines reduced the timeline for public works payments from four months to a week (World Bank, 2019).

During the Covid-19 response, there was a critical need to disburse emergency payments to existing and new service users in a fast and accessible manner. Early evidence suggests that digital approaches often had a **positive impact on the speed and scale of emergency payment delivery**, at least where the foundations for digital delivery were already in place. Cross-country analysis by the World Bank suggests that countries with stronger digital infrastructure (including ID, payment systems and social registries) were generally able to implement and disburse emergency assistance programmes more rapidly than those without these assets (Palacios, 2020; Gentilini et al., 2020). The Social Protection Approaches to Covid-19 helpline (SPACE) found that faster and larger-scale Covid-19 responses were associated with the country's digital

infrastructure (ID, mobile phone and bank account coverage, and the availability of mobile phone and internet networks); the use of electronic payment modalities (less relevant for new programmes, but very significant for quick expansion of existing programmes); automatic enrolment based on pre-existing databases; and large social registry coverage (although the benefits of the latter only kick in above the 15% coverage threshold) (Beazley et al., 2021).

This is supported by studies at the country level crediting digital application systems with enabling more rapid mass registration during the pandemic, as in Namibia (Dokovic et al. 2021) and the Democratic Republic of Congo (DRC) (Bance et al., 2021). Other studies showed that those receiving payments digitally frequently accessed these more quickly or at higher rates than manual recipients, in Bangladesh and the US for example (Shonchoy et al., 2021; Hall and Neuberger, 2021). However, in several cases where electronic payments were proven to deliver faster support, the gains came from households who were already set up for digital payments for routine programmes, limiting the value of the technology in scaling up to under-served populations, for example in India and the Philippines (Gelb et al., 2021; Cho et al., 2021).

Consequently, for the millions of people globally who were able to access emergency support through digital channels during the pandemic, such mechanisms were often highly beneficial in the context of a rapidly spreading virus, confinement measures and an escalating socio-economic crisis, facilitating access to assistance more quickly, in some cases directly to people's homes. Given the constraints under which many governments were operating (social distancing requirements, lockdowns and limited existing infrastructure for serving in-need populations), digital approaches often appear to have been central in enabling a substantial number of households to request and receive support more effectively than would likely otherwise have been possible. Nonetheless, these benefits also came with risks and challenges, particularly for those with lower access to digital infrastructure. These concerns associated with digital delivery both prior to and during the pandemic are discussed in Section 3.

Improved recipient outcomes

A handful of studies suggest that effectively delivered digital social protection may go beyond improving recipient experience to help improve certain recipient outcomes. In Niger, for example, mobile money transfers paid to women (after initial provision of a mobile phone) resulted in **better household food security** than traditional cash transfers, likely due to female recipients being able to reallocate the time and travel money formerly spent collecting the transfers towards more productive activities, as well as having increased decision-making power within the household over the use of the less visible transfer (Aker et al., 2016). In Bangladesh, routine scheme recipients with access to digital payments during the Covid-19 pandemic were found to suffer **lower losses to consumption and income** than counterparts relying on manual cash distribution (Shonchoy et al. 2021). This was likely related to the fact that digitised distribution was less disrupted than the manual system during lockdowns, meaning that digital recipients were more likely to receive timely and regular payments. However, the rollout of the digital system

prior to Covid was not random and digital recipients had larger incomes to begin with than their manual counterparts, so their higher income security cannot be wholly or directly attributed to the impacts of the digital mechanism itself.

Beyond this, much of the evidence on recipient-level impacts of digital approaches relates to 'interim' outcomes, such as **increases in recipients' access to financial accounts**. In Brazil, emergency payments during Covid-19 led to the opening of around 49 million new savings accounts (Yamasaki and Rodopolous, 2021). In Colombia, digital transfers through the Covid-related *Ingreso Solidario* and *Devolución IVA* schemes were credited with bringing over 850,000 recipient households into the digital financial system (Pabon, 2021). A key question is whether accounts opened under emergency measures will be converted into permanent accounts that are embraced in the longer term and used in a way that actually improves recipients' final outcomes (such as their wellbeing, income or food security). In the Philippines, there have been efforts to convert restricted accounts (those opened with lower levels of verification to receive Covid-19 payments) into regular transaction accounts, which participants can use for wider financial services. Yet uptake to date has been low, suggesting **limited impacts of initial account-opening on longer-term outcomes** in that instance (Cho et al., 2021; Cruz et al., 2022).

Reduced leakage and inclusion errors

Improved accuracy and accountability of social protection delivery is often held up as a potential benefit of digital social protection, and there is some notable evidence of such gains materialising in practice. Biometric audits in Nigeria helped remove 37,000 'ghost' pensions from the government pension payroll (Gelb and Decker, 2012). Using applicants' ID numbers to cross-check eligibility against multiple government databases removed 660,000 ineligible applicants from social programme registration lists in Thailand in 2016 (World Bank, 2019). Meanwhile, the launch of a digital transfer system for a workfare programme in Bihar, India, was associated with significant reductions in corruption and leakage (Banerjee et al., 2016), and end-to-end computerisation of transactions in India's Public Distribution System (PDS) helped reduced leakage of food grains from 93% in 2004–2005 to 29% seven years later (Alderman et al., 2018).

Potential reductions in leakage are often explicitly recognised by service users as being a tangible benefit of digital approaches. For example, in a study of PDS digitalisation in Rajasthan, India, the majority of respondents preferred the digitised system to the old manual one, with over 90% citing 'no one takes my ration on my behalf' as the reason for this preference (Gelb et al., 2018). Such sentiments were also evident during a mobile payments trial in the Productive Safety Net Programme (PSNP) in Amhara, Ethiopia, where 'nobody takes our money' was the most common reason for recipients to prefer mobile transfers to manual ones (closely followed by factors relating to ease of collecting payments) (USAID and FHE, 2018).

In the emergency response to the Covid-19 crisis, analysts have highlighted technology's role in **reducing opportunities for diversion and corruption** by increasing the traceability of the

vast sums of money being distributed to citizens at an unprecedented scale and pace (Gelb and Mukherjee, 2020). In Togo, the introduction of an electronic database and a real-time online monitoring platform from the outset of the *Novissi* digital cash transfer programme in April 2020 was credited with high levels of programme transparency, as well as trust among funders (Lowe et al., 2021).

Through a separate programme implemented in 2021, Togo also provides a subsequent example of the potential benefits of digital approaches for **improving targeting quality in a data-limited, crisis context**. For a new wave of transfers in 100 rural districts, independent researchers worked with the government and the NGO GiveDirectly to pilot a machine learning-based targeting approach, using satellite imagery and mobile phone records to identify the most vulnerable areas and households (Aiken et al., 2021). The new targeting method was deemed a rapid and cost-effective supplement to traditional approaches, significantly reducing exclusion and inclusion errors relative to other methods that could have been feasible in the context. It did not show evidence of gender, ethnicity, religion or age bias, and performed particularly well when selecting among relatively homogenous populations, and between those above and below the extreme poverty line. Throughout the process, extensive measures were taken to ensure maximum protection of users' privacy and confidentiality.[1]

Reduced implementation costs

Whether due to reduced leakage and inclusion errors or the greater efficiency of automated systems, several studies have associated digitalisation with *lower programme implementation costs*. For example, in Argentina, the use of unique ID numbers to link participant lists from 34 social programme databases (and thereby address inclusion errors) led to savings of $143 million over an eight-year period (World Bank, 2019). A biometric enrolment campaign in Botswana's social grant and pension programme reportedly reduced the number of recipients by 25% by cutting out ghost, deceased and duplicate entries, resulting in annual savings of around $1.7 million (Gelb and Decker, 2012; Gronbach, 2020). Mobile money payments in a cash transfer trial in Niger saw a higher upfront cost due to the initial need to purchase mobile phones for participants, but per-transfer costs were around 20% lower than physical distribution (Aker et al., 2016). Meanwhile, the shift to bank transfers for social grant delivery in South Africa was associated with a 62% reduction in delivery costs (Bankable Frontier Associates, 2006, in Pickens et al., 2009).

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1   For example, only metadata that was strictly required for the targeting exercise was collected, and it was stored on secure servers with access restricted based on a thorough data management plan. Potentially sensitive metadata was relabelled with a unique ID prior to analysis and use, and the only data shared by the research team with the implementing agencies were the SIM card numbers to contact the final list of eligible recipients (Aiken et al., 2021).

Better data for designing and refining policies and programmes

Where electronic systems have improved the traceability of social protection delivery, they have also sometimes been associated with providing **higher-quality data for more transparent, 'real-time' decision-making** (Hare and Parekh, 2020). For example, the introduction of a high-frequency, phone-based monitoring system for a farmers' cash transfer programme in Telengana, India, resulted in a 8% decline in the number of participants not receiving their expected transfers, as well as a 3% increase in the rate of on-time delivery (Muralidharan et al., 2019). While the study mainly attributes these results to the increased incentive for officials to be seen to be performing well under the new monitoring system, it also notes the potential of phone-based monitoring to enable continuous improvements in programme design and implementation by providing more detailed, regular and rapid information on programme performance than in-person field surveys (ibid.). Relatedly, a study of digital public service delivery in Andhra Pradesh, India, found that the state government has continually improved service performance through 'real-time' monitoring and analysis of digitally recorded administrative data, alongside high-frequency phone surveys (Gelb and Mukherjee, 2019). This feedback is used to refine strategies at the programme level, as well as to identify individual grievances, which are then resolved within a specified timeframe and require community-based officials to step in to address technology failures (ibid.).

3   Risks and challenges

While there are many potential benefits of technology, there is also evidence that – unless designed and implemented with inclusive intentions and careful mitigating measures – digitalisation may, in some cases, do more harm than good. Such concerns relate to potential risks and challenges of exclusion, protection and privacy violations, 'techno-solutionism' and obscured transparency and accountability.

Entrenched exclusion of the most vulnerable populations

'Amplification theory' suggests that, far from having 'transformative' potential, technology is primarily a magnifier of existing institutional forces, including current social, economic and political dynamics (Toyama, 2011). Without strong mitigation measures, digital approaches to social protection may therefore entrench existing exclusion, with those most in need of assistance being least likely to have access to the technological devices, networks and systems that underpin digital delivery.

Prior to Covid-19, there was already evidence of digital approaches entrenching the exclusion of vulnerable populations. In India, for example, biometric authentication and electronic payments have been associated with compounding exclusion risks at each phase of social protection delivery, due to: (1) poor-quality information on vulnerability in the databases used for initial targeting exercises; (2) stringent eligibility checks during biometric enrolment excluding marginalised households (who are more likely to lack documentation or have administrative errors in past identification records); (3) payment transaction failures due to issues with identity verification, or blocked or frozen bank accounts; and (4) challenges with digital payment withdrawal due to distance from payment points, network failures, biometric errors and overcharging or fraud (Gupta, 2021). Faced with such constraints, vulnerable individuals or households often find themselves either wholly excluded from digital social protection delivery, or reliant on human intermediaries to navigate their access (Chaudhuri, 2019). While some intermediaries may provide this service for a minimal fee, others may exploit digitally excluded individuals or households, who have few other options for accessing services.

Similar issues have been documented in other contexts, from low-income countries to the wealthiest nations. In Uganda, ID requirements have barred many from social protection due to issues with biometric registration or verification, inconsistencies in identification records and the high costs associated with accessing an ID card or replacing lost or damaged documents (Unwanted Witness, 2019; CHRGJ, ISER and Unwanted Witness, 2021). Meanwhile, in the UK and US, flaws in eligibility algorithms, errors in electronic databases and lack of access to required documentation, internet or digital devices have left millions unable to claim benefits or being wrongly accused of welfare fraud (Eubanks, 2018; UN, 2019). The UK government's independent

audit of its 'digital-by-default' service shift found that only around half of claimants were able to make a claim online without help, with most not having the documents needed to verify their identity electronically (National Audit Office, 2018).

The heightened exclusion risks associated with digital social protection are unsurprising given persistent gaps and inequalities in access to three key assets underlying digital approaches. First, as indicated above, vulnerable groups often lack access to **identification or civil registration** required to register for or claim digital benefits. For example, 44% of women and 28% of men in low-income countries lack access to official proof of identity (Zimmerman et al., 2020). Poorer or otherwise disadvantaged populations are particularly likely not to have biometric identification records, but even when they attempt to register or verify themselves biometrically, they tend to be rejected at higher rates. In India, people with disabilities, farmers, manual labourers and older people have been the most likely to struggle with biometric iris scans or to lack readable fingerprints, leaving them disproportionately excluded from biometrically verified welfare schemes (Privacy Intl, 2021; Parsheera, 2020 in Barca et al., 2021; Allu, Deo and Devalkar, 2019).

Second, even if they can prove their identity to claim digital benefits, **ownership of and access to digital devices** is far lower among disadvantaged groups. For example, in one study in Papua New Guinea only 16% of women had a mobile phone (compared to the average ownership rate of 50% for the population as a whole) (Payne, 2020). In a trial of mobile payments in a social protection programme in Bangladesh, 45% of mothers receiving mobile money benefits were unable to read or reply to the SMS messages they received (Gelb et al., 2019). Meanwhile, people with disabilities face barriers to digital access due to affordability constraints and limited accessibility of devices, programmes and websites (UN, 2021).

Finally, even for those with ready access to electronic devices, **access to digital networks** (mobile or internet network coverage, electricity, payment agents or withdrawal points) may be limited, particularly in rural or remote areas. For example, in 2019 around 60% of African households lacked a reliable electricity supply, and nearly half of households globally that lack mobile broadband networks are based in sub-Saharan Africa (Afrobarometer, 2019; GSMA, 2020b; Gronbach, 2020).

These exclusion risks were also evident during the pandemic, generating concern that digital Covid-19 responses neglected some of the most vulnerable households at their time of greatest need (Masiero, 2020; Roelen and Carter, 2022). Digital registration systems were often inaccessible for the most disadvantaged households, as highlighted by accounts from South Africa, the DRC, Mexico and India (Alfers, 2021; GIZ, 2021; Gronbach et al., 2022). In Brazil, at least 7.4 million people eligible for the *Auxilio Emergencial* scheme lacked internet access, including 30% of households in the north-east (Lustig and Trasberg, 2021). Even where digital Covid-19 payments were disbursed to people with bank accounts prior to the pandemic, as in India, issues arose. Accounts had often fallen dormant or had not been correctly verified against the account

holder's identity or mobile phone number, and many recipients struggled to cash out payments, given time, distance, travel costs and lockdown restrictions hampering access to distant withdrawal points (Dreze and Somanchi, 2021; Gelb et al., 2021). In Bangladesh, discrepancies between National Identification Cards and corresponding mobile phone numbers meant that grants were initially disbursed to less than half of 5 million targeted households (WIEGO, 2020). In the US, access to unemployment benefits and emergency stimulus payments was hindered by lack of internet and bank accounts and problems with facial recognition technology (Holtzblatt and Karpman, 2020; Feathers, 2021).

Within low-income populations, individuals with particular socio-economic disadvantages often faced the greatest barriers to accessing digital social protection programming in response to Covid-19. In Bolivia, indigenous people were particularly likely to face challenges accessing emergency Bono Universal payments due to not having a national identity number, or living in territories without financial institutions for payment withdrawal (Diaz and Venturini, 2021). Where registration and payments were online or mobile-based, women's access in India was often mediated by male relatives or owners of internet cafes or shopkeepers, since men are more likely to own a smartphone and be internet-literate (Ghosh, 2021; Gelb et al., 2021). In Pakistan, only 25% of women received emergency government support in April 2020, compared to 63% of men, which was in part attributed to the need to have a mobile phone (with sufficient credit to send enrolment messages), a bank account and a legal ID for Covid-19 transfers (O'Donnell et al., 2021). There is also widespread evidence of older people struggling to access emergency assistance due to a reliance on digital technologies for information-sharing (e.g. in Belize and Vietnam), new scheme registration (e.g. in India and Pakistan) and mobile payments (e.g. in Mozambique and Kenya) (Juergens and Galvani, 2021).

Although some important measures were taken to help mitigate exclusion (Box 1), many were still neglected by Covid-19 programming. Further evidence is needed to understand the scale and impacts of this exclusion, and to ensure that those overlooked by pandemic responses are not penalised in the longer term by digitalisation shifts. In some cases, permanent exclusion may arise because emergency caseloads that were rapidly registered during the pandemic (through often-questionable identification processes) are now set to benefit from longer-term support, leaving households that were initially excluded at an even greater disadvantage (as for Colombia's *Ingreso Solidario* scheme). In other cases, digital approaches trialled during the pandemic are starting to be incorporated into routine systems, which may render those poorly served by the pandemic response less able to access future support (as in Togo, where the digital-only Novissi programme is regarded as a proof-of-concept for permanent provision) (Lowe et al., 2021).

Box 1 Mitigation measures to overcome exclusion risks

Wherever digital approaches are used, it is vital to take proactive steps to overcome exclusion risks. In Covid-19 programming, various mitigation measures were adopted as emergency schemes were rolled out, in some cases proactively and in other cases in response to emerging evidence of exclusion. One set of measures related to **adapting procedures to overcome exclusionary pre-requisites** for participation. For example, in Indonesia's Village Cash Transfers scheme, local teams were given the authority to step in to verify the person's identity, where applicants lacked a national ID card (Roelen and Carter, 2022). In Pakistan, the requirement to have a valid ID was waived for those with expired cards, payment deadlines were extended for those facing issues with biometric verification, and SMS registration and helpline messages were made free of charge (Nishtar, 2021). In Somalia, access to mobile money transfers was facilitated by the distribution of SIM cards to those lacking phone access (Holmes, 2021).

Another key mitigation measure was to **expand the range of delivery mechanisms available** to ensure an adequate combination of digital and in-person approaches. In Thailand, the initial web-only registration approach for Covid-19 programming was adapted to allow digitally excluded households to register at state-owned banks (ESCAP, 2021). In South Africa, the combination of digital and 'traditional' outreach channels was deemed critical for making emergency provisions relatively well-known (Roelen and Carter, 2022). In Peru, the range of payment mechanisms was successively increased to include transfers into bank accounts, mobile e-wallets, over-the-counter collection and cash-in-hand delivery (although it was felt that recipients would have been better-off still if they had been able to select their preferred option rather than being assigned a mechanism based on government-held information about account ownership) (Lowe et al., 2021).

A third principal factor for mitigating exclusion risks related to the **involvement of civil society and community representatives** in ensuring successful provision to otherwise-neglected groups. As illustrated by accounts from Kenya, South Africa and Thailand, civil society organisations were crucial in making digitally excluded households aware of new government programming and assisting them to apply (Roelen and Carter, 2022). In Argentina and South Africa, the existence of mechanisms to represent community voices in policy-making processes was essential for developing more inclusive government provisions (ibid.). Civil society organisations also played a primary role in monitoring the extent to which vulnerable households were accessing emergency support and in advocating for more inclusive provision, as in Sri Lanka (Lowe et al., 2021). Where civil society actors are being relied on to facilitate government provision to vulnerable groups, it is important that they are adequately recognised and compensated for this crucial role.

Data misuse violating the privacy and protection of vulnerable populations

Recent years have seen growing unease about data protection and privacy risks associated with technologies used for social protection delivery. In countries where biometric ID systems are being rolled out nationally and linked to social protection benefits (such as India and Kenya), the lack of robust legal frameworks protecting participants' data has been a cause for concern, as have recurrent breaches of such databases (Sepúlveda Carmona, 2018; National Law University Delhi, 2019; Privacy International, 2019). Such privacy threats are even more concerning given that participants often feel obligated to provide information despite unease about its use; in Uganda, 25% of men and 13% of women surveyed were uncomfortable sharing much of the personal information required to get a national ID card, regarding some of the details (such as ethnicity and tribe) as an infringement of their privacy or a mechanism for government surveillance (Unwanted Witness, 2019).

Such data protection and privacy risks have in several cases led to harassment or abuse of vulnerable households. In some instances, these rights violations have been committed by **private corporations**, through predatory practices targeting social protection applicants or recipients. In South Africa, a scam resulted in almost one in four electronic grant recipients being automatically charged for insurance, airtime, loans and other financial services (Gronbach, 2020). In India, technology has been used to mask fraudulent withdrawals from participants' accounts in MGNREGA payments (Gupta, 2020), while in Brazil there have been multiple instances of fraud using electronic social protection participant records (Fragoso and Valente, 2021).

On other occasions, **governments or political actors** have themselves committed mass rights violations using digital databases linked to social protection. In Kenya, ethnic and religious minorities have faced systematic discrimination when attempting to register for national ID cards, preventing their access to ID-linked social protection benefits (Privacy Intl, 2021). Concerns have also arisen about government abuse of surveillance technologies associated with digital welfare systems, for example to discriminate against those identified as migrants or transgender in Venezuela (Diaz and Venturini, 2021) and to subject low-income and immigrant communities to disproportionate scrutiny related to welfare fraud surveillance in the Netherlands (a practice which was subsequently banned by the Dutch Supreme Court) (Henley and Booth, 2020). In other cases, databases compiled for assistance provision by one actor have fallen into the hands of a repressive regime; in Myanmar, Rohingya refugees provided biometric data to register for UNHCR assistance in Bangladesh, some of which has reportedly been shared with the government of Bangladesh and subsequently the Myanmar government (HRW, 2021; Holloway and Lough, 2021). In Afghanistan, biometric ID databases developed and promoted by international actors (including for ID-based access to social programmes) have likely now been taken over by the Taliban, highlighting the risks of centralised, biometric ID systems in fragile contexts where such information could easily be abused (Access Now, 2021).

During the pandemic, existing risks of data misuse are perceived to have been amplified by 'rushed innovation' with digital tools. In times of crisis, it is common for digital innovation to occur without the usual levels of caution and scrutiny (Madianou, 2020; Roberts, 2019), and governments and corporations may actively exploit states of emergency to increase surveillance, bypass individual rights or profit from users' data (Newlands et al., 2020). In the Covid-19 response, repeated concerns about data protection risks have most often been discussed in relation to digital tools for public health contact tracing. Yet many such concerns could also apply to the rapid design and deployment of digital-based emergency social protection (Masiero, 2020).

First, emergency social protection agreements were often developed hurriedly, leading to questionable privacy procedures for much of the new data collected. In the Philippines, local government units exchanged sensitive information on social protection eligibility in insecure emails (Cho et al., 2021). In the US, private debt collectors captured emergency stimulus payments of some indebted recipients (Ivanova, 2020). In addition, increased cybercrime and digital disinformation during the pandemic have extended to the social protection sphere, as illustrated by the increase in digital scams related to registration for emergency cash transfers in Malawi, Ghana, India and Brazil (Roelen et al., 2021; Rizzi, 2022). More broadly, there are concerns that people registering for Covid-19 programmes were unable to give truly voluntary or fully informed consent regarding their data use given rampant virus transmission and lockdown restrictions. Without proper safeguards and consent procedures, data collected hastily during the crisis risks being used for purposes against participants' knowledge or will, such as for immigration, law enforcement or counter-terrorism monitoring by governments, or for commercial purposes by private enterprises (Madianou, 2020; Taylor, 2020; Newlands et al., 2020).

Mixed evidence on cost-effectiveness given social protection objectives and needs

While technology is often touted as a cost-saving mechanism, evidence on the overall cost-effectiveness of digital approaches complicates this picture.

Critics of 'techno-solutionism' argue that 'tech fixes' are sometimes embraced as supposedly cost-effective solutions to complex social problems, without properly accounting for the technology's ancillary costs, and without acknowledging or addressing the root causes of those problems (Morozov, 2013; Greene, 2021). In other cases, technological innovation is felt to be **serving as an intentional pretext 'to slash budgets and slim down the welfare state'** (UN, 2019). According to a report by the UN's former Special Rapporteur on Extreme Poverty, digitalisation of social protection is often accompanied by 'deep reductions in the overall welfare budget, narrowing of the beneficiary pool, elimination of some services, introduction of demanding and intrusive forms of conditionality, the pursuit of behavioural modification goals, the imposition of stronger sanctions regimes, [and the] complete reversal of the traditional notion that States should be accountable to the individual' (ibid.). In the US, Eubanks (2015) notes a similar 'high-tech façade' being used to mask new cuts to welfare provision, while in the

Netherlands some municipal governments have been accused of reducing numbers by making it intentionally difficult for people to apply for social security, due to overwhelming amounts of data required in digital applications (Rubio, 2018, in Van Zoonen, 2020).

In addition, analyses of the actual cost-savings achieved through new technologies suggest that the gains sometimes fall short of advocates' claims. For example, while India's digital governance reforms have in some cases achieved impressive cost savings *alongside* increases in service quality (e.g. in Andhra Pradesh (Aadil et al., 2019)), in other cases the net cost-effectiveness of digitalisation initiatives have been called into question. For example, several studies have concluded that introducing biometric identity verification into the subsidised food distribution programme did not actually lead to overall reductions in leakages (in part because the latter mostly related to 'quantity fraud' rather than identity fraud), and some suggest that corruption may actually have increased under the new system (Allu, Deo and Devalkar, 2019; Dreze et al., 2017 in Malaza and Parekh, 2020; Singh et al., 2020; Hosein and Whitley, 2019 in Carswell and de Neve, 2021). The financial benefits of new digital approaches may therefore sometimes be overstated, and there may be a tendency to underestimate their associated costs. For example, when assessing the cost-effectiveness of digital payments, researchers have cautioned the need to fully account for the major up-front investments in physical payment infrastructure required, as well as the substantial costs of a robust financial identification system and consumer protection and education (Klapper and Singer, 2017). Tying up capital in projects of questionable long-term value presents a significant opportunity cost for governments (Nyabola, 2021).

Where savings are made, these sometimes reflect cuts in service quantity or quality. In the US, cuts to service provision based on increased use of algorithms in social care assessments resulted in a series of legal challenges by care users reporting harmful reductions in service quality (McCormick, 2021). In India, Muralidharan et al. (2021) found that biometric authentication reforms in social protection delivery resulted in substantial costs to eligible participants, millions of whom lost access to benefits at some point during the reforms; these 'indirect' costs can easily surpass any potential benefits from reduced leakage. Digital innovation is reported to have 'brought additional anxiety to poor people's lives' (Dreze et al., 2017 in Masiero, 2021), and can be associated with a perceived deterioration in service quality, as illustrated by the almost universal (97%) dissatisfaction with digitised access to the Public Distribution System in a pilot in Jharkhand, India (Pandey, 2018). Where service users had found the earlier manual system to be working relatively well, they may find that digitalisation *increases* the costs of accessing support if they have to navigate unfamiliar and unreliable digital channels in environments with volatile and patchy digital infrastructure (Madianou, 2021).

Although the evidence above focuses on routine social protection provision, many of the same concerns about net cost-effectiveness of digital approaches have also been noted in relation to Covid-19 responses. Experimental evidence from Colombia found that those receiving new VAT Compensation payments by mobile money associated this technology with

additional costs rather than benefits, reporting twice as many payment delays or difficulties compared to physical cash recipients (Londoño-Vélez and Querubin, 2020). None of those interviewed reported purchasing goods or services electronically with their mobile money payments; instead, they travelled to banks and ATMs to immediately cash out payments, which was often an expensive and time-consuming process especially for rural recipients, and which meant that mobile money recipients were no less likely to leave home during the lockdown period than in-person cash recipients (ibid.). Research from the Philippines indicates high time and travel costs for those receiving emergency Covid-19 payments digitally, who had to travel an average of 30 minutes and queue for approximately 100 further minutes to withdraw their payments, due to the small number of ATMs serving programme participants, particularly in remote areas (Cho et al., 2021). Where benefits were cashed out at payment agents, there were instances of agents increasing cash-out fees for scheme recipients, until this was addressed by new regulations (ibid.).

Given vulnerable households' widespread challenges accessing digital delivery, in-person approaches have often been required as a supplement to or eventual substitute for digital approaches, limiting the technology's supposed cost-savings. In the Philippines, electronic verification of emergency cash applicants struggled to determine eligibility, meaning the government had to resort to local manual validation of applicants (Cho et al., 2021). Furthermore, while 7-8 million new accounts were opened to receive digital transfers during the second phase of the emergency, inadequate recipient data meant that far fewer could actually be used for digital transactions, requiring physical distribution instead in these cases (ibid.).

Reduced accountability and transparency of public service provision

While some view technology as a mechanism for increasing the traceability of social protection benefits, others highlight the opacity and lack of accountability that often accompany digital approaches to service provision, including during the pandemic. Reliance on digital media for outreach and information-sharing can leave digitally excluded individuals unaware and therefore unable to hold governments to account. As illustrated in studies from Indonesia (Hebbar et al., 2021) and beyond (Roelen and Carter, 2022), this problem was exacerbated during the response to Covid-19, since frequent changes in policies and programming were advertised through predominantly digital channels to reduce contagion risks.

For registration and enrolment too, the replacement of in-person approaches with digital platforms frequently leaves applicants unsure where to turn to resolve issues, as has been documented in the UK's 'digital-by-default' Universal Credit system (UN, 2019). Once applications are submitted, algorithms to determine social protection eligibility in digital databases are often intentionally obscure. While this aims to prevent applicants from 'gaming the system', it also makes it very difficult for incorrectly assessed applicants to understand or appeal against their exclusion. The 'black box mystery' of eligibility algorithms was an issue before Covid, but raised

particular concerns in pandemic programming, since enrolment decisions were often based on more limited or out-of-date information, as illustrated by case studies from Ecuador, Colombia and South Africa (Palacio Ludeña, 2021; López, 2020; WIEGO, 2020).

Even after eligibility has been determined, technology can also undermine accountability and transparency during the benefit collection phase. For example in India, the switch to digital, biometrically authenticated transactions made it difficult for participants to understand or resolve the cause of access challenges (Chaudhuri, 2020). The electronic system to keep track of benefits through SMS records of receipt was found to be less reliable than the previous record-keeping system of paper ration booklets, because text messages often did not come through immediately (or at all), were difficult to read for those with low levels of digital, functional or English literacy, and were not permanently available to those who lacked ownership of the mobile device or phone number linked to their benefits (Carswell and de Neve, 2021).

Alongside reduced state accountability, a related concern is the growing role and influence of for-profit service providers in digital social protection delivery. Whereas government agencies and officials are accountable for front-line delivery in most in-person social protection provision, private tech companies, mobile network operators and financial service providers are frequently responsible for the services, hardware and software underpinning automated approaches (Madianou, 2020). The large scale of public service contracts means that there are strong financial incentives at play, and despite efforts to ensure transparency in procurement and service delivery, increased reliance on for-profit third parties can raise concerns about private sector influence over public service provision and associated data access (Privacy International, 2020; Shepherd-Barron, 2020; OHCHR, 2021). In relation to service provision in lower-income countries, these fears are exacerbated by the fact that the private companies behind digital social protection are often based in the so-called 'Global North', raising concerns about a new era of 'digital colonialism' (Kwet, 2019) that risks 'simultaneously impoverish[ing] development of local products while also leaving the continent dependent on Western software and infrastructure' (Birhane, 2020). In some cases, the digital tools being promoted in lower-income countries have not been accepted for use in the Global North.[2]

Given the rapid digitalisation of many aspects of public service provision during the pandemic, the above concerns have only been amplified by the Covid-19 crisis (Madianou, 2020). Going forward, it will be key to address these concerns to ensure that longer-term delivery arrangements are developed in a way that supports citizens to hold the state and any intermediary service providers to account for their right to social protection.

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2   See Sepulveda Carmona (2018) for a discussion of the reluctance of high-income countries to introduce biometric technology into their national identity and social protection systems.

That said, it is also important to recognise that the concerns outlined above are not restricted to digital approaches. A careful consideration of the nuanced benefits and costs in relation to the viable alternative approach is therefore necessary. In South Africa, for example, the social assistance agency's negative past experience outsourcing social grant payment provision to private fintech providers (who engaged in predatory practices targeting recipients) has led to a strong reliance on the state-owned post office/bank to disburse social grants, both prior to the pandemic and in the emergency response to Covid-19 (Gronbach et al., 2022). Yet disbursements through this state-owned system have been widely associated with limited accessibility of pay points, payment delays, security breaches and escalating costs

(ibid.). The Covid-19 response saw chaotic conditions at pay points, fraud and corruption, and considerable time and travel costs for rural recipients to access emergency support. The absence of digital innovation in emergency payment delivery was considered by some analysts to be the social assistance agency's 'biggest failure' in its Covid-19 programming and a 'missed golden opportunity' to improve the flawed status quo (ibid.). This illustrates that, when considering the merits of investing in digital interventions, **it is important to take into account not only the potential risks or costs of adopting a digital approach, but also the (short- and long-term) risks or costs of *not* adopting that approach, and instead maintaining the default provision or pursuing an alternative 'manual' route**.

4 Lessons

Ultimately, the opportunities and risks associated with digitalising social protection – and the balance between these – will depend on the specific intervention and the context in which it is being applied. Technology is merely a tool, and its outcomes depend on the needs that it is expected to meet, the goals it is deployed to pursue, and the specific ways in which it is designed and implemented (Gelb, Mukherjee and Navis, 2020; Masiero, 2020). Even when a digital system or programme is introduced, human intermediaries will typically continue to play a role at the last mile of service provision, meaning a hybrid system often develops in practice (particularly where technological infrastructure and access is patchy) (Chaudhuri, 2019).

'Binary thinking' is therefore unlikely to be fruitful when considering the overall impact of digitalising social protection. The outcomes of a given intervention will rarely be categorically positive or negative; it is rather a case of understanding how benefits and costs will be distributed (who will be better or worse off, to what extent, and why), as well as the effectiveness of the measures taken to mitigate potential concerns and maximise expected gains.

With these points in mind, eight general lessons are outlined below, to help guide policy-makers, practitioners and partners when considering, designing or implementing digital approaches to social protection provision.

Lesson 1: Where digital innovation is pursued, ensure the primary goal is broader access and better provision for service users.

In the unique context of the Covid-19 pandemic, it was imperative for governments to adapt existing programming to public health restrictions, while rapidly establishing additional provisions to meet vast new needs of those whose lives and livelihoods had been damaged by the crisis. In relation to these objectives and constraints, digital approaches played a notable role in maintaining and expanding the delivery of vital support for many people worldwide during the pandemic. Yet many were also left behind, put at risk, or inefficiently-served by the accelerated reliance on digital approaches.

As digital approaches to social protection are considered going forward, it is vital to assess the underlying goals and rationale for digitalisation initiatives, to ensure that the primary focus is on improving the coverage, quality and comprehensiveness of social protection provision. If digital approaches are expected to save costs, this should be viewed as a means to subsidise the ongoing provision of more resource-intensive support, rather than as a means to cut provision overall. If technology appears to have been adopted as an end in itself, or as a 'quick fix' distracting from attention to the real problem at hand, the feasibility and desirability of the approach should be re-evaluated and alternative solutions considered.

Lesson 2: Recognise that technology can serve to replicate existing inequalities and reinforce existing political dynamics, unless intentional mitigating action is taken.
If institutional capacity or political will for social protection is lacking to begin with, it should not be assumed that digital approaches will substitute for these deficiencies. Furthermore, the digitalisation of social protection can easily exacerbate prior socio-economic vulnerabilities and inequalities, unless carefully designed to combat exclusionary forces. It is vital that these tendencies are recognised, and appropriate mitigating measures put in place, if the digitalisation of social protection is to improve upon rather than aggravate the status quo.

Lesson 3: Where digital approaches are taken, adequately complement them with alternative, additional and back-up manual provision.
As highlighted in Section 3 (Box 1), it is crucial to take pre-emptive steps to mitigate the exclusion risks associated with digital provision and to ensure that a range of approaches are in place to allow users with different needs to access social protection in a way that is accessible, convenient, and effective for them. Many of the most vulnerable will not be able to benefit from digital approaches, so it is essential that *alternative*, in-person approaches are established from the outset (so that the 'hybrid' system that operates in practice is as effective as possible for digitally excluded service users). Moreover, some users might benefit from digital approaches, but relying on technology alone will be insufficient to include them, requiring *additional* in-person support to help facilitate their access to digital systems. Finally, even for those who manage to access digital services, technologies sometimes fail, requiring appropriate manual *back-up* provisions. During a crisis, digital approaches may well have a role to play in delivering immediate emergency assistance for a sub-set of the population; however, a purely digital strategy should only be relied on as a **stop-gap while mobilising a more comprehensive (digital and manual) response**, rather than as a sufficient solo strategy for overall provision.

Lesson 4: Put human rights considerations and protections front and centre in any digital approach.
The digitalisation of social protection can pose serious risks for already vulnerable groups. Proactive measures must be taken to ensure that citizens' and residents' rights are fully protected and actively promoted, including special consideration of the needs and wellbeing of particular marginalised groups. These measures should include (but not be limited to) the full protection of applicant and recipient data, with privacy, confidentiality and security considerations guiding the design and implementation of all digital approaches, and information only being collected where necessary, and only being processed for the relevant purpose.

Lesson 5: Develop strong governance arrangements and legal and regulatory frameworks to ensure rights-respecting use of technology in social protection systems.
The consideration of users' rights in digital social protection initiatives must be complemented by efforts to improve the wider environment in which technologies are adopted. This includes strengthening the laws and policies regulating digital service provision, and ensuring that

accountability for upholding service users' rights is clear and that recourse mechanisms for addressing rights violations are effective and accessible. This should be accompanied by investment in the capacity of independent institutions responsible for monitoring and implementing the relevant laws and policies, to ensure that rights are respected in practice and not just on paper.

Lesson 6: Promote strong public participation and oversight in the design, implementation and monitoring of social protection, including consideration of any digital approaches.

To achieve strong public participation and oversight, potential and existing service users need to be meaningfully involved in the consideration, development, delivery and evaluation of digital approaches to social protection provision, including a specific focus on ensuring that views and experiences of marginalised groups are understood and addressed. Policies and procedures should be in place to ensure transparent delivery, including mandatory procedures for data protection breaches or other rights infringements to be disclosed and appropriately addressed.

Lesson 7: Adapt and continually refine the design and implementation of digital approaches based on users' feedback.

Proactively soliciting users' feedback and refining provision based on their comments is a fundamental tenet of Adaptive Management, and an important principle for all public service provision (Andrews et al., 2017; Rocha Menocal et al., 2021). Nonetheless, this practice is particularly important for digital social protection, given the heightened vulnerabilities of many service users, and the distance that technology can create between them and the government agency ultimately responsible for provision.

Lesson 8: Continue to develop digital and financial services infrastructure and to promote digital and financial inclusion, but remain realistic about its limitations.

Particularly during stable (non-crisis) periods, efforts should be made to develop digital and financial service infrastructure and to focus in particular on enhancing the access of disadvantaged populations. However, it is important not to underestimate the scale and quality of infrastructure and capacity required for these investments to deliver the desired returns. A myriad of social, cultural, political and economic barriers hinders vulnerable individuals' access to digital devices and consistent use of financial accounts. Addressing one factor will rarely transform financial or digital inclusion outcomes; for this, a comprehensive, longer-term strategy to develop effective and inclusive digital and financial services infrastructure will be key.

1 Ensure the primary goal is broader access and better provision for service users

2 Recognise that technology can easily replicate existing inequalities

3 Complement digital with alternative, additional and back-up manual provision

4 Make human rights considerations front and centre

5 Strengthen governance, legal and regulatory frameworks

6 Promote public participation and oversight

7 Refine based on users' feedback

8 Invest in infrastructure, but be realistic about its limitations

Box 2 Further guidance

For additional guidance on improving the use of technologies in particular spheres see:

- *Social protection information system development*: e.g. Chirchir and Barca (2020); Barca and Beazley (2019); Barca et al. (2021); Barca and Hebbar (2020); Lindert et al. (2020); Digital Convergence Initiative (2022)
- *Identification and data protection*: e.g. Enabling Digital, GIZ and SPIAC-B (2020); Goodman et al. (2020); ID4D (n.d.); ICRB and VUB (2020)
- *Digital payments*: e.g. Better than Cash Alliance (n.d.; 2021); Lindert et al. (2020)
- *AI in social protection systems*: e.g. Ohlenburg (2020); World Bank (2020)
- *Digital approaches in development programmes*: e.g. DIAL (n.d.)

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