Is going digital the solution?
Evidence from social protection

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Policy in Focus

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Summary

Editorial

When developing digital social protection systems, policymakers must often choose between contradictory alternatives. While success is not guaranteed, some principles can be followed to minimise risks. Digitalisation is expected to enhance the agility, transparency, effectiveness, and efficiency of social protection. However, it is a means rather than an end and must not be considered a 'silver bullet'. Practitioners and researchers must understand the issues embedded in the technologies used for social protection delivery and uptake, from both the demand and supply sides.

This special 50th issue of Policy in Focus provides examples of countries that have digitalised their social protection systems to varying degrees. Its 12 articles provide a glimpse on different building blocks of digital architecture, such as national unique ID systems, tools for registration and payments, the automatisation of eligibility decision-making processes, the existence of digital infrastructure, databases and software, and other aspects.

The opening pieces focus on governance. Ellermaa and Labi discuss e-governance model in the Republic of Estonia and how the past 20 years of digital social protection provision culminated in decision-making models supported by automation and artificial intelligence. The following article by Guven, Mittal and Wodsak applies the principles of digital development to the social protection sector.

The next section encompasses the social protection delivery value chain. The article by Aiken and Blumenstock discusses the digital leap represented by Togo's *Novissi* programme during COVID-19 pandemic. Gronbach zooms in on digital payment systems, detailing their growth and discussing resistance to their permanent adoption in contexts in sub-Saharan Africa.

Gelb, Mukherjee and Webster then provide an example of digital identity verification, direct benefit transfers, and financial inclusion based on India's *Aadhaar*.

In the following section, a series of articles dives into building blocks of the social protection architecture. Faour and Yablonski highlight the architecture of UNICEF's management information system for humanitarian cash transfers, HOPE. Direito and Machado present Brazil's experience with its COVID-19 emergency cash transfer, the Single Registry, and the expansion of national identification cards. Closing this section, Assumpção highlights various open-source software solutions for different social protection business processes.

While most articles discuss the benefits and risks of digital social protection, the last part of the issue draws on additional experiences. Beazley and Doyle discuss the challenges related to digital inclusion and who is left behind by an increasing reliance on digital infrastructure. Giest and Samuels discuss the pre-conditions for equitable digital access policies in data-driven governments, and Britto, Freitas and Waltenberg bring a case study of digital social currencies used for social protection in two Brazilian municipalities. Finally, McGowan and Vora argue for the importance of providing people access and control over their data.

The contributions contained in this issue invite the reader to question if digital solutions can truly solve the problems faced by social protection systems and programmes. It is a complex theme and there is evidence suggesting that digitalisation may sometimes further exacerbate existing problems, or even create new ones requiring different solutions.

Krista Alvarenga, Beatriz Burattini and Gabriela Perin

Estonia's 23 years of experience
with digitalised social protection services

Nele Labi[1] and Rauno Ellermaa[2]

When Estonia is mentioned, concepts such as 'e-services', 'e-government', 'digital transformation', or 'digital nation' most likely come to mind. Indeed, the small Nordic-Baltic country has been a pathfinder in digitalising public sector services ever since it regained its independence in 1991.

According to the European Commission's Digital Economy and Society Index Estonia ranks first in the European Union regarding public services (see Figure 2). Ninety-nine per cent of its public services are continually available online, and the share of e-government users grows annually, reaching 89 per cent in 2021. Social services are no exception when it comes to the country's wholescale digitalisation, and they cannot be viewed outside the context of Estonia's goals of general digitalisation and a citizen-centred approach.

Short history and paving stones for digitalisation in Estonia

Three years after regaining independence from the Soviet Union's occupation, the Estonian government created the first draft of the "Estonian Information Policy." Its main concept is that *the information society is a comprehensive concept that covers social reality in its totality*. This document established the governmental information policy goal to help create a society and a State that serves citizens. This vision, empowered by the proactive IT sector and the hopeful population, was a necessary condition and the enabler of all that followed.

The next strategic steps were decisions on funding—1 per cent of gross domestic product (GDP) earmarked as State funding to the information and communications technology (ICT) sector since 1994; and a national programme launched in 1996, known as Tiger Leap—in an effort to leverage technology for teaching and learning, building up the technology infrastructure in schools, including providing Internet access to all. The government has been an example and a pathfinder, helping build trust and hope.

Key technologies for enabling digitalisation

The backbone of Estonia's digital society is interoperability. Estonia's famous e-solution environment includes a full range of services for the general public. And since each service has its own information system, they all rely on the open-source interoperability software *X-Road*, which interconnects all public registries and digital services.[3]

FIGURE 1: The Estonian X-Road ecosystem
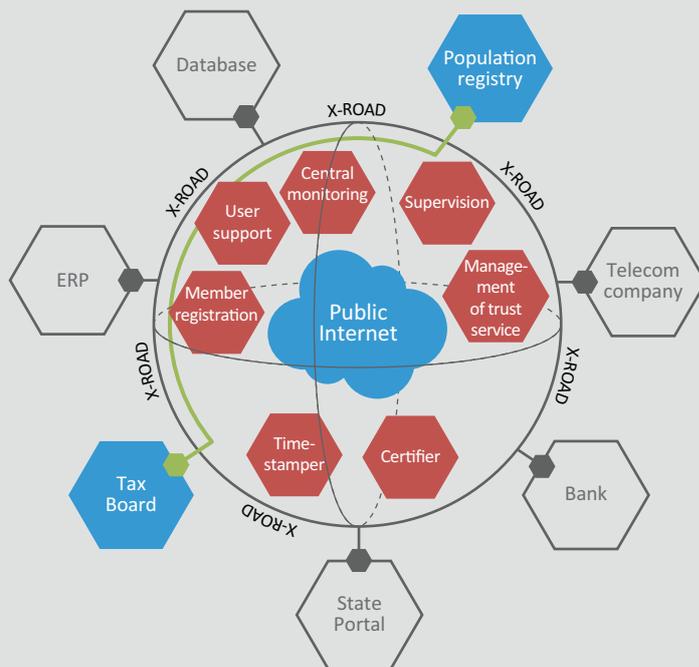
Source: Republic of Estonia (2022).

> " The backbone of Estonia's digital society is interoperability. Estonia's famous e-solution environment includes a full range of services for the general public.

FIGURE 2: e-Estonia timeline

Year	Milestones
2000	e-cabinet · e-tax board · m-parking
2001	X-Road®
2002	e-school · digital signature · id-card
2003	eesti.ee
2004	id bus ticket
2005	e-police system · i-voting
2006	e-notary · e-justice
2007	mobile-id · company registration portal
2008	e-health system · keyless signature infrastructure
2010	e-prescriptions
2011	smart grid · visualized business register
2012	ev quick charging network
2013	public services green paper
2014	e-residency · e-service Estonian Road Administation
2015	e-prescription
2017	data embassy · NIIS X-Road® consortium
2018	crossborder e-prescription · kick-off proactive government
2019	AI strategy · reporting 3.0
2020	7 invisible services · 50 public sector AI use cases · e-notary for remote verification · proactive family benefits
2021	bürokratt

Source: *<https://e-estonia.com/story/>*.

To ensure secure transfers, all outgoing data is digitally signed and encrypted, and all incoming data is authenticated and logged. The key idea of *X-Road* is that each service provider owns its data and is responsible for managing the access rights to its services. *X-Road* is also the government tool that enables the use and combination of data—beyond mere collection—for the benefit of citizens, providing added value and initiating proactive services.

Pensions and social benefits

In 2000, a national digital system for pensions and other social protection benefits (SKAIS) was introduced. Previously there had only been a digital registry without operational functions. SKAIS started carrying out the calculations and payments of all national pensions and benefits. In 2011, work began to introduce an updated version of the system (SKAIS2), featuring more functions and a client-friendly front end. At the time, information systems were being built as all-mighty giants. Complex social systems, various pension schemes and innovative concepts were just too elaborate and extensive for the State to understand the flaws in development and procurement and too big for IT companies to build. Failures in planning and implementation multiplied the costs, wasted public money, caused a political crisis, significantly delayed all deadlines, and weakened collaboration between the public and private sectors. It has been a significant learning curve and a turning point for rethinking the public development processes. Now, the country has chosen a strategy to go small and agile, prioritising microservices, etc.

Although its backend is still somewhat challenging, SKAIS2 is in use and appreciated by the users. It offers the possibility to provide services based on a novel concept—a proactive approach. Instead of waiting for citizens to turn to the State and apply for a service or subsidy in case of need, the administration now analyses data registered in other systems and proactively informs citizens when a service or subsidy is available to them. Instead of waiting for people to request a service from the government, it now issues proposals digitally—all people

need to do is look at the offer and click 'yes' or 'no'. The client recommendation index for the services is 81 per cent (on a scale from -100 per cent to +100 per cent). Clients appreciate the logical, simple and comprehensive approach and its proactivity.

Estonia's first proactive service: social care for new parents

In 2019, the Estonian Social Insurance Board and digital transformation company, Nortal, launched the country's first proactive public service. Based on SKAIS2, it proactively provides family and parental benefits. This means that parents of a newborn no longer need to apply for benefits, but rather receive a proposal from the government for the benefits they are entitled to, which they simply have to confirm.

This service aims to make life easier for parents. Previously, the information was fragmented and parents lacked confidence that they had all the necessary details on the applicable benefits. Furthermore, there was no automation, and only 15 per cent of benefits were based on offers. And even those proposals were drawn up by hand, resulting in laborious manual work for state officials, taking up to 65 minutes to process a single application.

Parental benefits with a click of a button

In October 2019, all parents in Estonia received a proactive offer of benefits for the first time via self-service portal. When a child is born, their entry into the population registry will trigger all follow-up services without the parents having to manually apply. The proposal directs parents to a self-service portal where they can accept the offer with a single click.

Parents are informed of the benefits to which they are entitled, the benefit value, the underlying calculations, date of payment, and what are the next steps.

To enable this, an automated system based on complex algorithms operates in the background. It supports comprehensive data analysis, comprising more than 80 unique variables to consider,[4] which results in a comprehensive set of information regarding who is eligible for benefits and

what the benefit value should be. When family conditions change, the system validates data via various registries to approve the benefits and their values.

Therefore, proactive services use previously existing databases and registries that already hold extensive information about citizens. When the benefit proposal is sent in a proactively manner, all the data is pulled from these databases, making it unnecessary for the citizen to provide that same information repeatedly. Once the administration defines the problem and identifies the target group, it can quickly deliver benefits to those in need.

Recognizing the needs of citizens

Today, 99.99 per cent of registered births are checked automatically to determine eligibility for parental benefits. Therefore, new parents can devote their time to their new family member instead of dealing with paperwork to validate their rights. They are provided with all necessary information.

Furthermore, when automated processes take care of most standard cases, State officials have more time to create value and quality in their work. This includes paying more attention to special cases when people who are eligible for benefits do not apply, whether by lack of awareness or other reasons, thereby reducing the number of non take-up cases.

The scope of impact:
- The Estonian Social Insurance Board (which is funded directly by the State budget) oversees roughly 20 per cent of the country's distributed annual budget and pays benefits to about 60 per cent of the population.

- The Social Insurance Board of Estonia disburses family and parental benefits monthly to 17 per cent of the population.

- As a result of these services, direct monthly contacts with beneficiaries were reduced by 88 per cent, and State officials have more resources to direct their efforts into providing quality service and information to citizens.

FIGURE 3: Process comparison before and after implementing proactive parental benefits

BEFORE

Parents

Registration of baby's name

Submission for family benefits

Understanding your rights to benefits
Gathering documents that prove the right to benefits
Filling out the submission
Sending in the submission

Life event

Life event

Monthly family benefit

Background check, enquiry to registries
Re-calculating the benefit total

Official

Official's monthly actions for next 16-19 years

Handling new application

Monthly activity

Handling new application

Monthly activity

Handling new application

NOW

Parents

Registration of baby's name

Confirmation to proposal for family benefits

Automatically exchanged data
Re-calculating benefit sum
Online confirmation

Life event
Activates according to changed data

Life event
Activated in self-service portal

Monthly family benefit

Random data control

Case that requires special solution

Official

Source: Authors' elaboration.

Social welfare services

Social work is mostly organised by local governments. In 2006, the central government initiated the work to create a National Social Services and Benefits Registry. It was launched in 2010 and is used today by all local municipalities. This system does not have a direct client interface. Still, it is a tool for social workers to carry out various case management procedures, such as organising adoption, custody, assigning support personnel, etc. Some local governments have their own front end, but the data collection system and logic of all municipalities are based on the central system.

Social systems are closely linked with healthcare and employment systems

The need for social services and benefits is often affected by employment or health circumstances and vice versa. In Estonia, data is exchanged between social, healthcare and employment systems to help citizens reduce bureaucratic burdens, cut costs, and create new services. The Digital National Health System has been operational since 2008. It collects data from all healthcare service providers and is linked to social and employment systems. For example, the Labour Market Insurance Fund can request medical information regarding disability or inability to work that is the basis for providing a specified set of labour market services. Another example is providing pregnancy data and predicted date of birth as a basis for the Social Insurance Board to calculate future benefits in advance, inform the soon-to-be parents of their opportunities, send reminders for maternity leave, etc.

Of course, sending personal data across different systems is a delicate subject, and people must have the right to manage their data and to be aware of who and why has access to this information. To that end, Estonia has developed a Data Tracker, which tallies all the information systems and provides a quick overview of which entities have been requesting citizens' sensitive data and for what purpose. It even logs the instances where a person requests their own data.

Tackling unemployment with the aid of artificial intelligence

Estonia's primary authority in taking care of unemployment-related issues is the Estonian Unemployment Insurance Fund (EUIF). When a person loses their job, they can apply for unemployment status online or at a physical office by filling out a short form. After registering as unemployed, the person is assigned a personal counsellor to discuss the next steps and opportunities for employment or retraining. The counsellor must analyse many pieces of information to create, together with jobseekers, a suitable action plan for their successful return to the labour market. Thus, working through the extensive background information of all applicants and gleaning a comprehensive overview of the caseloads takes considerable resources.

Reducing the harmful effects of unemployment

To raise the quality of the services provided to the unemployed population and increase the efficiency of organisational processes, the EUIF has partnered with Nortal. In collaboration with Nortal, scientists from the University of Tartu developed an AI-powered decision support tool (OTT) that predicts the risk of long-term unemployment (see Figure 4). It helps EUIF counsellors to better understand the situation of jobseekers and manage daily caseloads more effectively. The OTT calculates someone's probability of getting a new job and their level of risk of becoming unemployed again. Moreover, it provides counsellors with information regarding the jobseeker's strengths and weaknesses that impact the risk score.

The tool collects data from many public registries connected via *X-Road* and analyses information over the last five years, including salaries from the Tax Office, education from the Board of Education and subsidies from the Social Welfare Office. As the EUIF states, "The solution is an AI-powered decision support tool, which supplements the official data from multiple government registries and the extensive experience of the counsellors in helping people back to the labour market."

For example, with the help of the OTT, counsellors can distinguish low-risk applicants from high-risk ones. The first group is most likely able to find their next job independently, but the second needs thorough assistance. Using the tool allows counsellors to focus on jobseekers with the highest risk of prolonged unemployment. Furthermore, it helps the EUIF gain a more profound understanding of the labour market's condition and develop data-based labour policies.

In 2021, the OTT project received an award for Best Data-Based Digital Service in the Estonian public sector. EUIF counsellors are using this solution daily, with positive results. They can use the data provided by the tool in addition to their experience to decide the frequency and channels of counselling and what kind of active labour market policy measures could be offered to the population. Chief consultants can see a profile overview of the counsellors' jobseekers and caseloads to make any necessary adjustments.

Furthermore, the practical experience of using AI has opened new possibilities for how the calculations resulting from OTT can be applied—for example, analysing how benefits and subsidies affect the movement to work. From an organisational management perspective, the tool provides evidence-based information for the effective allocation and use of resources.

Figure 4 illustrates predicted vs. actual entrants to employment, monitoring the accuracy of the OTT forecasting. On average, it is over 95 per cent accurate.

Pros of digitalising social protection systems

Time savings. Digitalisation saves time and money, and enhances administrative processes. According to estimations, digital signature alone enables Estonia to save 2 per cent of its GDP per year.[5] For individuals, it saves about 5 working days per year.[6] Furthermore, by using the *X-Road* services, Estonians save around three million working hours per year.[7] Of course, speed is often crucial when receiving support.

Accessibility. The population density in Estonia is very low as there are many rural areas in the country. The possibility of providing services remotely saves time, reduces CO_2 emissions and the need for physical offices, improves accessibility, and shortens delivery time.

> **"** The solution is an AI-powered decision support tool, which supplements the official data from multiple government registries and the extensive experience of the counsellors in helping people back to the labour market.

FIGURE 4: OTT forecasting of entrants to employment.

No. of entrants moving to employment

Y-axis: 0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1.000, 1.100, 1.200

X-axis (%): 2, 8, 14, 20, 23, 29, 35, 41, 47, 53, 59, 65, 71, 77, 83, 89

— Actual entrants to employment — Predicted entrants to employment
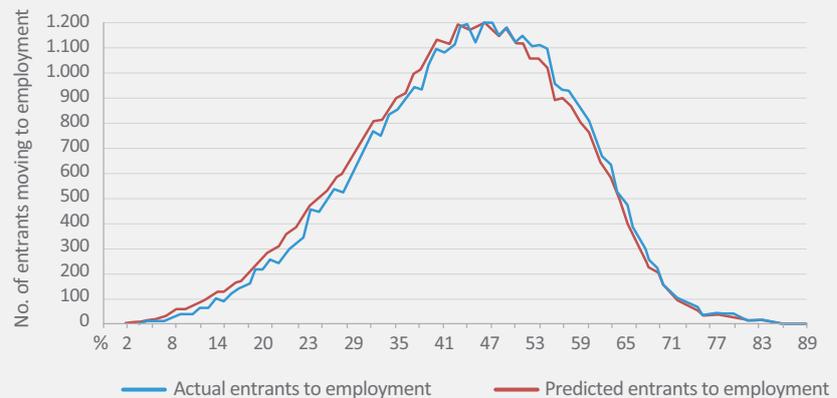
Source: Authors' elaboration.

New possibilities. All countries have a multitude of data, but it is often not trivial to use or analyse them because they are document-based and scattered among different institutions. Digitalising all data and applying common standards allows using them for better, on-time, and proactive services, even aiming for personalised health risk prevention.

Lessons learned

- It is important to team up with people who dare to dream big, have a vision and are motivated to overcome any challenge and resist the comfort zone of old ways of thinking.

- Positive outcomes can only be delivered when we rethink the whole service process during digitalisation—i.e., it is not sufficient to merely take a paper-based service and 'scan it in'. This will only lead to frustration among citizens and government employees. Service design methods must be applied.

- Trust and security are paramount. People are becoming increasingly more aware of the importance of data protection. For the Estonian administration, the keyword has been transparency. Its solution is showing citizens precisely why and who has been looking at their data.

- Do not focus on the problems you want to solve, but on the gains. Taking up ground-breaking future endeavours is a task that binds people together during hardships. Start when there are difficult times, provide a sense of hope and foster synergies through collaboration.

- Having nothing also means no legacy systems. Estonia is currently facing the problem that starting early also means going obsolete early. Moving from extensive monolithic systems to contemporary microservices is something to be avoided if at all possible.

- Create possibilities, not obligations. And at first, create for the majority; this provides the best outreach capacity, momentum, and the biggest wins— then, start scaling down to minor groups and exceptions. ●

Republic of Estonia. 2022. "Data Exchange Layer X-tee". *Republic of Estonia Information System Authority website.* <https://www.ria.ee/en/state-information-system/x-tee.html>. Accessed 20 October 2022.

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2. Head of Delivery Unit at Nortal.

3. See: <https://ibit.ly/tKxF>.

4. E.g., does the parent have full custody of the child? If parent and/or child is not a citizen, are they residing in Estonia on a long-term residence permit or permanent right of residence, or a temporary one? These are only a few unique conditions that must be considered.

5. See: <https://ibit.ly/pF6v>.

6. See: <https://ibit.ly/VurR>.

7. See: <https://e-estonia.com/solutions/interoperability-services/x-road/>.

Applying principles for digital development
to the social protection sector[1]

*Veronika Wodsak,[2] Anita Mittal[3]
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The application of information and communications technology (ICT) solutions to social protection systems is generally considered an important contribution to achieving key development objectives. This includes universal social protection, in line with Target 1.3 of the Sustainable Development Goals (SDGs).[5] Accelerating the extension of social protection coverage is badly needed, considering that more than half of the global population still does not receive any social protection whatsoever.[6] Many governments are exploring the potential of digital technologies to support the implementation and extension of their social protection schemes and programmes.

However, past experiences have also shown the risks or challenges[7] of introducing IT solutions for social protection delivery. These include the replication or exacerbation of existing patterns of social exclusion, insufficient procurement expertise by public institutions, lack of infrastructure or staff capacity to use the proposed technology, poor data protection and privacy, ambush-marketing and vendor lock-in (i.e., the government cannot change the company supplying the IT services without substantial costs or risks as a result of proprietary, incompatible technology).[8] For example, the UN Special Rapporteur, discussing the use of algorithmic models to automate decision-making in social protection systems, observes that they are largely being used to "automate, predict, identify, surveil, detect, target and punish" (UN 2019), rather than supporting people to realise their right to social protection. Comparative studies of computerisation in the social security systems of 13 OECD countries also show that technology is more likely to be used to control staff and claimants, rather than empower them (Adler and Henman 2005). While this is not inherent to digitalisation, governments have used technology for these ends.

Despite these drawbacks, the promises of digital solutions to reduce error and misuse of funds, increase transparency, accountability, efficiency and trust, and facilitate affordable, user-friendly delivery solutions to remote areas have prevailed. However, there was also a recognition of the need to devise digital development principles to provide guidance for practitioners in applying digital technologies to development efforts. Through a community-driven effort facilitated by the Digital Impact Alliance,[9] nine digital development principles were identified in 2014 and since have been endorsed by over 300 NGOs, UN agencies, development partners and private sector entities across different sectors. These principles are: 1) design with the user; 2) understand the existing ecosystem; 3) design for scale; 4) build for sustainability; 5) be data-driven; 6) use open standards, open data, open source, and open innovation; 7) reuse and improve; 8) address privacy and security; and 9) be collaborative.

Though these principles are still very useful, including for digital social protection efforts, there are nuances when applied to social protection systems. While they are also framed to address private actors implementing digital solutions, for social protection, the primary responsibility rests with national governments.

Sometimes, policymakers seek digital solutions for politically expedient reasons or those not geared towards the attainment of human rights. Technology cannot replace political decision-making or change the political culture. In a development cooperation context, this means that digitalisation projects should focus not only on the sound implementation of ICT but also support political and strategic planning to promote progress in reaching the human right to social security. A tenth principle could therefore be formulated for digital development in social protection: "do not confuse technical and political decisions". This means not expecting ICT to provide technical solutions for political problems. This article will introduce the reader to each of the nine principles and briefly explain their relevance and applicability to the social protection sector.

Principle 1: Design with the user

Knowledge of the users and of their needs and capacities is important for designing digital solutions that meet their expectations. This principle also entails continuously gathering and incorporating user feedback. As social protection systems incorporate various programmes to address different population groups and life-cycle risks, multiple sectors must be involved and various actors across different administrative levels contribute to their implementation. Therefore, there is no single user of digital social protection systems.

There are two main types of direct users of digital social protection solutions: (external) intended entitlement holders of various schemes who use digital tools for registration, receiving payments, paying contributions, launching complaints, etc.; and (internal) administrative staff, service providers and social workers, who use the applications as a front-end interface to deliver services to beneficiaries or as back-office staff involved in beneficiary management, payment delivery, referral, addressing complaints, and various oversight and management functions. In system design, it is especially important to include concerned persons, including vulnerable and marginalised groups. These may include older people, people with disabilities, indigenous populations, rural populations, migrants or women, but also social workers who are more likely to be digitally excluded and may face specific challenges in using digital technologies.

Principle 2: Understanding the existing ecosystem

This principle goes beyond analysing the existing technology and infrastructure and also includes the culture, gender norms, political environment, economy, and institutional capacities. However, it is difficult to know how much information and background analysis is needed in a given setting.

Photo: WorldRemit. Woman using application money, Kenya, 2016 <*shorturl.at/egrz5*>.

In the context of social protection programmes, information regarding the availability, affordability and accessibility of infrastructure for different population groups is key to ensure those most in need will have access to the benefits and services. For example, an estimated 3.7 billion people do not use the Internet (UNDESA 2021), but the vast majority of the world's population is connected to a mobile network. In developing economies, the share of adults able to make or receive digital payments was estimated at 57 per cent in 2021. Equally important is considering the human resources that build, maintain and sustain digital social protection. A shortage of skilled staff is a significant challenge in many countries and it is often difficult to attract qualified staff on government-scale pay.

Sometimes, social protection programmes work in silos to develop solutions for their specific delivery strategy. However, processes such as identification, payment and grievance redressal are similar across programmes, and shared ICT solutions can benefit from economies of scale in an overall e-governance architecture. Understanding the administrative system therefore also includes a holistic analysis of the social protection system and public administration to identify potential for synergies, improving user experience, and cost-saving and efficiency gains.

Principle 3: Design for scale

Solutions developed in small pilot projects of limited reach do not necessarily work when scaled up. Thus, many digitalisation initiatives fail to move beyond the pilot stage. It is therefore important to design for scale and widespread adoption from the start, considering factors such as financial resources, staff (in sufficient number and with the required skills) and infrastructure needs as well, as possible needs for adapting solutions to different contexts (different geographical regions, rural-urban etc.) and the need to rapidly scale up to deploy relief cash transfers in case of a shock.

While 'at scale' for the social protection sector typically means national level, it can also mean the province or state level in large countries. However, with the increased mobility of workers within countries, fragmented systems with solutions at the federal level create additional challenges. Furthermore, with migration on the rise globally and in light of countries' agreements to ensure portability of entitlements across borders, 'at scale' can also mean making IT solutions interoperable with systems of other countries. This is why the Digital Convergence Initiative,[10] created under USP2030, is working to improve interoperability, facilitate the development of standardised taxonomies, business processes, workflows, and data fields necessary for scaling up, reduce the cost of IT solutions and enable cross-border exchanges of information.

For the social protection system, 'at scale' can also mean going beyond a single programme—developing solutions that can be used by various programmes across different ministries. Fragmented social protection systems with programmes operating in different ministries without much coordination—or even in competition—hamper this planning for scale.

Principle 4: Build for sustainability

This principle means ensuring the IT solution adopted will last over time. Government buy-in and ownership is key; otherwise, the necessary financial and human resources will not be committed to maintain the social protection system. Building data systems and developing IT solutions and related investments comprise a long-term process, which sometimes does not match the volatility of political commitments and electoral cycles. At the same time, there is a need to accommodate frequent reforms in the social protection system in line with changing political preferences and needs, demographic and economic developments and—increasingly—co-variate shocks.

Ideally, complementary investments to improve IT capacities should ensure the continued operation of the system. Due to lack of internal capacities to develop and maintain IT solutions, many low- and middle-income countries outsource development and maintenance to private vendors, often expensive international vendors with potential threats to sustainability.

Building for sustainability requires a sound estimation of the total direct and

indirect cost for a system or product, both from a development perspective as well as operations and maintenance, including for training staff and users. These costs are typically difficult to assess and underestimated. Efforts are under way to develop costing and revenue models that can help realistic planning and sustainability. The principle of building for scale is closely related to bringing down unit costs and enhancing sustainability.

An additional key factor that facilitates sustainability is the keeping the IT solution flexible enough to adapt to changing needs. The easiest way to ensure this is to develop agile methods to allow for adaptation during the course of implementation.[11] This is closely related to the first principle (designing with the user), which allows the feedback from early tests and pilots being used to ensure that users' needs being taken into consideration.

Principle 5: Be data-driven

Decisions on policy changes in social protection schemes and related IT solutions should be informed by evidence. This implies that decisionmakers have access to the necessary high-quality information, including administrative data stemming directly from the digital social protection solution, as well as information collected from other sources. A clearly articulated monitoring and evaluation framework is needed to systematically determine indicators and collect and analyse the respective data. Data needs for monitoring purposes may include sufficiently disaggregated, time-stamped data on financial flows, service delivery timelines (i.e., enrolment, verification, services and benefit payments), detecting patterns in reasons for rejection, bottlenecks causing delays, data on payment modalities accessed, trends from complaints mechanisms and case management information systems, etc.

Data-driven decision-making can be encouraged across all levels of management and administration by using intuitive reports, analytic tools and dashboards. At the same time, it is important to ensure fair, transparent and accountable use of data, related to Principle 8 (address privacy and security).

Principle 6: Use open standards, open data, open source and open innovation

An open approach to digital development can help increase collaboration in the digital development community and avoid the duplication of work. Open data in public service delivery contributes to increased transparency and accountability without compromising privacy. Periodic publication of information regarding key parameters of system performance (e.g., population coverage, benefit levels, risks covered, administration cost, financing sources) increases trust in the system.

Open-source solutions can prevent vendor lock-in, enable integration and interoperability across government levels, foster trust in robust and secure systems, enable continuous innovation, and enhance usability. At the same time, open-source software may also require extensive customisation, upkeep and maintenance, with associated costs. The case for open standards (which are available to all, as opposed to proprietary ones), used by both open source and proprietary software is clear: they are key for ensuring sustainability and scalability (see Principles 3 and 4).

Principle 7: Reuse and improve

'Reuse' means identifying currently available resources and using them to meet programme goals. 'Improve' entails modifying existing tools, products and resources to improve their overall quality, applicability and impact. 'Resources' include relevant methods, standards, software platforms, technology tools, and digital content. Reusing and improving reduces the time needed for development and testing, leading to cost reduction.

In a social protection system, as already observed in Principles 2 and 3, different schemes share many of the same implementation steps (outreach, registration and management of beneficiaries, eligibility assessment, payments, complaint and appeals mechanisms, etc.). Therefore, there will be opportunities to adapt and build on what already exists, keeping in mind that local contexts such as language requirements or low connectivity environments, and the extent of financial inclusion of the population, may mean that only certain existing solutions are suitable. For data

standards, social protection solutions can draw on and interact with a host of existing data sources, both government (e.g., beneficiary registries, social registries, civil registries, tax records) and private (e.g., call data records, credit scores). However, the costs and benefits of reusing solutions must be carefully assessed, as it can lead to higher costs later on due to being tied to a specific vendor or technology (vendor lock-in). Modifying existing code might be more complex and more time-consuming than building from scratch. The decision to build or reuse will depend on the local capacity to develop using the existing technological stack, the complexity involved and learning curve, and other aspects the true cost of ownership.

Principle 8: Address privacy and security

The right to privacy and data protection is enshrined in several international treaties, both in human rights framework and in international standards related specifically to social protection data systems (FAO 2012). A growing number of countries are enacting data protection legislation, as privacy and security have been recognised as key concerns in the context of increasing digitalisation of all aspects of life. At the same time, national data protection laws are often inconsistently respected in social protection systems (Sepulveda 2019). While this is a standard practice in other sectors, Data Protection Impact Assessments (DPIA) are not typically carried out in digital social protection development.

As social protection systems are run by public administrations and tend to collect large amounts of personal information, it is key for the government that confidential information is protected while data are collected, used, stored and shared. Transparency about how data will be collected and used and implementing policies to protect personal data will further help build trust. This requires a strong data governance framework anchored in law, as well as systematic enforcement.

While a key strategy is to minimise the amount of personal, identifiable and sensitive information collected, this may contradict the principles of designing

for scale and being data driven, which both encourage more extensive collection of data.

Privacy and data protection risks are higher in integrated systems, in light of the larger number of actors and increased difficulty to prevent data misuse. Risks are amplified further when programme delivery is outsourced to private service providers due to increased difficulty for oversight and control of information flows. In the case of social protection schemes, it is important to have strong control mechanisms regarding the confidentiality of private information, since beneficiaries may hesitate to complain in case of data breaches for fear of losing their entitlements. Given the importance and complexity of putting this principle into practice, a full set of data protection guidelines for social protection has been developed, elaborating on key principles such as informed consent, data collection minimisation, data security, frameworks for data sharing and data integration, etc (SPIAC-B 2022).

👥 Principle 9: Be collaborative

All preceding principles can only be fully realised if an overall collaborative spirit is maintained. Being collaborative entails sharing information and experiences, pooling expertise and adopting a human-centred approach. In multi-sectoral areas of work such as social protection, siloed approaches often prevail, unless structures for collaboration are consciously built by investing time, resources and careful planning. While collaboration across all stakeholders, including governments, development partners, social partners and civil society organisations is important, cross-sectoral collaboration between different government institutions is crucial. A close link with the broader e-governance system renders collaboration even more important for digital social protection solutions.

Past successes and failures of digitalisation efforts have demonstrated the importance of careful planning when introducing IT solutions to improve the performance of social protection systems. This process should involve all relevant stakeholders and ensure a collaborative spirit across

sectors and administrative levels, breaking down silos and avoiding competition between different ministries that is often found in the social protection system. The development of the IT solution should also be evidence-based, using available data regarding coverage, adequacy, accessibility and sustainability of existing provisions to inform decision-making, drawing on a sound analysis of the existing ecosystem (regarding existing social protection schemes, delivery capacity and infrastructure) and building on what already exists. Furthermore, the solution should be designed to envision scaling up from the ground up and be built to maximise sustainability and interoperability with other systems (other social protection schemes and e-government environments in the public administration outside the social protection realm), while also fully respecting the right to privacy and ensuring the confidentiality of private information.

Technology cannot act as a proxy for human policymaking or ethical judgement. While it can provide solutions to support the implementation of government policies, policymakers should not turn to technology to improve the rule of law, make up for governance deficits or establish parameters of social protection programmes including eligibility criteria, benefit levels and duration. Rather, the focus should be on maximising well-being for all members of society by increasing social inclusion and welfare and improving user experience and cost-effectiveness. It would do well to exercise caution before readily accepting the prevailing assumption that the outcome of technological innovation will automatically be positive if the process is well-managed. Some argue that technology may consolidate and intensify risks, since digitalisation efforts will necessitate the further application of technology, and this in turn may increase the number of problems requiring a solution, instead of reducing it. ●

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3. *Gesellschaft für International Zusammenarbeit* (GIZ).

4. World Bank.

5. FAO (2021) defines Universal social protection as "actions and measures to realize the human right to social security by progressively building and maintaining nationally appropriate social protection systems, so that everyone has access to comprehensive, adequate and sustainable protection over the life cycle, in line with ILO standards."

6. See ILO (2021) for a detailed overview of coverage rates by country, region and contingency.

7. See, for example Amnesty International (2021).

8. Proprietary technology or software is purchased or licenced without access to the source code. As such, there are restrictions regarding its use, modification and distribution.

9. The Digital Impact Alliance (DIAL) is a "think, do, replicate" tank housed at the United Nations Foundation, aiming to accelerate digital transformation so that services can safely reach everyone, everywhere using the power of digital technology and data.

10. See: <https://sp-convergence.org/>.

11. 'Agile methods' refer to a software development process that does not finalise a fixed set of specifications that are then developed accordingly, but instead encourages continuous development and testing.

Digital social protection in Togo

Emily Aiken and Joshua Blumenstock[1]

In Togo, a small nation of approximately 8 million people, an estimated 55 per cent of the population live below the international poverty line of USD1.9/day (Aiken et al. 2022a). However, prior to the COVID-19 pandemic, much of Togo's social protection programmes targeting poor people were financed, designed or implemented by international organisations, resulting in a patchwork social protection landscape covering a very small portion of the Togolese population (van Domelen 2012). Historically, the targeting and delivery of social protections in Togo has been hindered by the lack of a universal identification system. For instance, as of 2017, fewer than 10 per cent of Togo's population had a national ID card (World Bank 2017). In a society where 90 per cent of non-agricultural workers are in the informal sector (Djahini-Afawoubo and Atake 2018), the lack of a comprehensive administrative database has left the government without a traditional avenue for outreach and targeting of social protection programmes.

Digital innovations in the Novissi programme

At the onset of the COVID-19 pandemic in 2020, the Togolese government took steps to overcome constraints to deliver social protection in the face of an unprecedented economic downturn. In early April 2020, the Ministry of Digital Transformation launched Novissi, an all-digital cash transfer programme designed to aid the poorest population when public health mandates restricted mobility and economic activity. It embraced digitalisation throughout the social protection delivery chain, employing outreach via radio and SMS messaging, enrolment via Unstructured Supplementary Service Data (USSD) mobile technology, targeting using digital data (including satellite imagery and mobile phone records), and payment via mobile money.

Outreach: The Novissi programme was announced in early April 2020, and information on registration and eligibility was broadcast through a number of digital channels, including online social media platforms, radio advertisements on stations in eligible areas, and (in later iterations of the programme) targeted outreach to phone numbers of mobile subscribers living in eligible areas. In addition to these broad outreach campaigns, Novissi administrators met with community leaders across the country to inform them about the programme.

Enrolment: To register for Novissi, individuals dialled an SMS short code on their mobile phone, and entered their voter ID and other basic information into a short USSD survey. Voter ID was used for identification as it covered a much larger portion of the population—estimated at 83 per cent in 2020 (Aiken et al. 2022a)—than the Togolese national ID. While an individual could register through any mobile phone, one SIM card could only register one voter ID number for Novissi. While this requirement was aimed at reducing registration fraud, it may also have excluded individuals with shared or no mobile phone ownership (Aiken et al. 2022a), particularly in rural parts of the county which are characterised by relatively low phone penetration and ubiquitous phone sharing (Aiken et al. 2022b).

Targeting: Togo did not have a social registry with substantial coverage prior to the onset of the COVID-19 pandemic, and the last census (conducted in 2011) did not collect any data on poverty. Lacking a comprehensive data source that could be used to identify eligible beneficiaries, the Novissi programme used a combination of administrative data and non-traditional 'digital trace' data sources. The first iteration, which focused on urban areas, targeted informal workers, and informality was determined based on the occupation recorded on the individual's voter ID. When the programme was later expanded to rural areas, the implementation team worked with a team of academics to use digital data sources, combined with machine learning, for targeting.

First, Novissi used poverty estimates derived from satellite imagery using computer vision algorithms to select the poorest areas of the country for the rural expansion of the programme. It then made use of mobile phone records provided by Togo's two mobile network operators, combined with supervised machine learning algorithms, to generate poverty estimates for each mobile network subscriber in eligible areas. With funding from the non-governmental organisations (NGO) GiveDirectly, the rural expansion of the programme was able to pay those estimated to be in the poorest 29 per cent of subscribers in eligible areas, who were predicted to be living on under USD 1.25/day. In a targeting evaluation survey, we found that while exclusion errors resulting from the digital targeting approach were substantial, they were lower than other feasible approaches by 4-21 per cent, including expanding the employment-based eligibility criteria from the urban part of the programme or geographic targeting (Aiken et al. 2022a).

Payment: Eligible applicants to Novissi received unconditional cash transfers via mobile money. Mobile money accounts were automatically opened for subscribers who did not previously have one. In urban areas, beneficiaries received approximately USD17 per month for the duration of lockdowns, while in rural areas beneficiaries received approximately USD13 per month. In total, around 1.6 million individuals registered for Novissi, about 800,000 of whom were eligible under either the urban or rural eligibility criteria. The programme disbursed over USD20 million in benefits.

Beneficiary management: Beneficiaries and applicants who had trouble cashing out their mobile money payments, or who had questions regarding the application process or eligibility criteria, could call a dedicated toll-free hotline available in French or any of the four main Togolese languages. The call centre operating the hotline gathered data on the issues facing programme applicants. However, it did not act as a grievance redressal mechanism through which applicants could appeal eligibility decisions.

> " The COVID-19 pandemic led to a surge in innovation in digital social protection.

Photo: Adam Rogers/UNCDF. Women count money at a local microcredit lending station, Togo, 2013 <*shorturl.at/bpy38*>.

The future of social protection in Togo

Although COVID-19 continues to spread in Togo and elsewhere, the last of the Novissi cash transfers were disbursed in August 2021. As the Togolese government and others look to redesign social protection programmes in a post-pandemic world, a key question is the extent to which the digital innovations in outreach, enrolment, targeting, and payment from the Novissi programme should be integrated into future social protection programmes, both within the country and abroad. The government of Togo and other governments in a similar position face four key challenges to adapting pandemic-time digital innovations to long-term social protection programmes. These include identification, the unit of programme targeting (households vs. individuals), data security, and the design of adaptive social protection programmes to prepare for future crises and shocks.

Identification: While the voter ID registry provided a stop-gap form of identification for the Novissi programme, a system of identification with universal coverage is essential to an inclusive and robust social protection system. In 2021, Togo began rolling out a national biometric identification system (Macdonald 2020), aiming at universal enrolment by 2025.

Unit of targeting: Partially due to the limits of the identification system, eligibility to the Novissi programme was determined at the individual level. However, traditional social protection systems typically target at the household level. Moving forward, the Government of Togo plans to collect data that link individuals to households for identification purposes.

Digital data security and privacy: The integration of digital data sources—especially behavioural trace data sources, such as mobile phone metadata—raises a new set of concerns about data security, privacy and consent. A careful balancing of the utility of digital trace data for targeting against the privacy of individual data is required. Particularly in low-income countries such as Togo, where data security regulations are still being defined, special attention must be paid to obtaining consent for secondary uses of data or privacy-preserving practices for data protection.

Adaptive social protection: The COVID-19 pandemic led to a surge in innovation in digital social protection. In the future, the Togolese government and others will look to prepare their social protection systems for another similar crisis—whether a pandemic, conflict, or climate shock. Such adaptive social protection systems must be able to quickly onboard and pay beneficiaries, and make use of whatever data are available to identify those impacted by crises. The extent to which digital data can help identify those impacted by economic shocks is still unknown. A key research question for the next few years is whether mobile phone data, satellite imagery and other real-time digital data sources could help contribute to targeting the impacted populations in adaptive social protection systems. ●

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1. University of California, Berkeley.

The rise of mobile payment systems
for social cash transfers in sub-Saharan Africa

Lena Gronbach[1]

In an attempt to mitigate the socio-economic consequences of lockdowns and other restrictions implemented in response to the COVID-19 pandemic, most governments worldwide, including in sub-Saharan Africa, introduced various types of temporary compensation schemes to support vulnerable individuals and households. These social protection responses typically included one or several of the following interventions:

- Improved access to essential services, including food and in-kind assistance, waivers and subsidies for utility bills, price controls for essential goods, and the reduction of mobile money charges.

- Support for workers and businesses, including unemployment benefits and social insurance, wage subsidies, employment protection, as well as tax relief and financial support to businesses.

- Social safety nets, including social cash transfers, public works programmes, tax and repayment relief for mortgages, and credit and rent relief for individuals.

The expansion of existing social safety nets, as well as the launch of new emergency interventions to reach previously uncovered population groups, was a key element of the overall pandemic response. In addition, delivery mechanisms and administrative processes had to be adapted to the context of national lockdowns. Many countries therefore adopted digital technologies for the application, delivery and administrative processes of social protection schemes—in many cases for the first time. This development was characterised by a boom in mobile payments for the disbursement of social cash transfers, including in countries that had previously relied on other payment methods.

This article explores the use of mobile payment technologies for non-contributory cash-based social assistance responses to the pandemic across sub-Saharan Africa, predominantly in the form of social cash transfers to vulnerable households and individuals.[2] The data on mobile cash transfer payments presented in this article were collected during a two-round mapping of social protection responses to COVID-19 in sub-Saharan Africa (completed in mid-2020 and early 2021), for which the author was appointed as regional project lead. Data on pre-existing cash transfer programmes are based on a pre-pandemic mapping conducted by the author and concluded in March 2020 (Gronbach, 2020). These mappings, as well as this article, focus on government-led cash transfers, and therefore does not include programmes implemented exclusively by humanitarian agencies, non-profit organisations or donors, without any significant government involvement, delivery or branding.

The cash transfer response to COVID-19 in sub-Saharan Africa

Social cash transfers constituted more than half of the total safety net response worldwide, and they had already been a key instrument in efforts to tackle poverty and inequality prior to the COVID-19 crisis. In sub-Saharan Africa, 130 government-led cash transfer programmes in 44 countries were identified in early 2020 (Gronbach 2020).

As of February 2022, cash transfers were the most widespread social assistance intervention to the pandemic, including 962 measures in 203 countries. This represents 41 per cent of overall social assistance responses worldwide (Gentilini et al. 2022). In sub-Saharan Africa a total of 60 cash-based social assistance responses had been implemented by the end of 2020 (IPC-IG 2021). These can be classified into four categories:

- Vertical expansion of existing programmes (12 programmes in 10 countries).

- Horizontal expansion of existing programmes (14 programmes in 12 countries).

- Modification of delivery mechanisms of existing programmes (8 programmes, 3 of which affected the payment mechanism).

- Launch of new emergency programmes (34 programmes in 23 countries).

Although several countries in sub-Saharan Africa were able to scale up existing cash transfers in response to COVID-19, the bulk of social protection responses were implemented in the form of new emergency cash transfers—34 of the 60 cash transfer responses in sub-Saharan Africa fall into this category. Many of these programmes targeted previously uncovered beneficiary groups, including informal workers, the urban poor, and unemployed, able-bodied adults.

Mobile payments for emergency cash transfers

At the global level, the value of mobile-based government-to-person (G2P) transfers quadrupled during the pandemic, as shown in Figure 1.

The growth in mobile payments for G2P transfers was most pronounced in Latin America but could also be observed in sub-Saharan Africa. Prior to the pandemic, mobile money had been used in only 22 of the 130 cash transfer programmes in the region, mostly in the form of small-scale pilots, or as a secondary payment option for selected programmes. This changed significantly during the pandemic, as illustrated in Figure 2.

During the pandemic, payments into mobile wallets, as well as One-Time PINs sent to beneficiaries' mobile phones and cashed out via agents or ATMs, were used in close to 30 per cent of all cash transfer responses (including expansions and modifications of existing programmes), and for half of all newly-launched emergency transfers.

In addition, various regulatory reforms to boost mobile transactions were

implemented during the pandemic. These included fee reductions or waivers on mobile payments, increased transaction limits and account balances, and flexible Know-Your-Customer (KYC) and account opening requirements.[3] While most regulatory responses were initially announced as temporary measures (with a duration of 1-3 months), some were extended until the end of 2020, or have even become permanent.

Mobile emergency cash transfers: Country examples

Kenya's *Kazi Mtaani* public works programme, which started in Nairobi and was later rolled out to other parts of the country, provided community-based work opportunities for unemployed youth. It reached over 26,000 young people in Nairobi and targeted over 200,000 participants in the second stage of the roll-out. In addition, the Kenyan government and various donors provided weekly cash stipends to vulnerable households in informal urban settlements throughout 2020. Payments for both programmes were made via the popular M-Pesa mobile money platform, while the national flagship cash transfer scheme *Inua Jamii* continued to rely on traditional payments into bank accounts.

Madagascar's *Tosika Fameno* programme was implemented in collaboration with various donors in 2020, and rolled out in several phases. Mobile payments of MGA100,000 (USD26) were made to vulnerable households in the major confinement areas. After receiving a SMS notification, beneficiaries could collect their payment from mobile money agents, Western Union branches, or at post offices using the 'Paositra Money' mobile banking service.

Togo's *Novissi* programme provided mobile cash transfers of XOF12,250 (USD20) for women and XOF10,500 (USD17) for men. Togo is the only country in the region with gender-specific transfer values, and uses mobile platforms for both application and payment processes. Applications were received and processed via an SMS/USSD-based menu, accessible from any mobile network in Togo. Once approved, payments were credited to beneficiaries' mobile number on a bi-weekly basis. Following a temporary termination after the initial

emergency phase, the scheme was re-launched (in collaboration with GiveDirectly, a non-governmental organisation) in the form of a shock-responsive safety net covering the poorest regions of the country. Targeting is carried out via an innovative algorithm, using geographic satellite images in combination with cell phone usage metadata (Blumenstock 2021).

Botswana's Local Enterprise Authority provided a once-off transfer of BWP1,000 (USD90) to informal businesses, registered street vendors and micro-, small- and medium-sized Enterprises in 2020. Applicants were required to enrol in a newly-launched

database, which the government plans to use in future interventions for the informal sector. Although mobile money services run by mobile network operators are popular in Botswana, payments were made almost exclusively via the e-wallet service offered by First National Bank (FNB). Beneficiaries could withdraw their funds free of charge from any FNB ATM in the country, using the one-time PIN sent to their cell phone—i.e., without having to open a mobile money account.

Opportunities, challenges and outlook for mobile cash transfer payments

The pandemic, the resulting lockdowns and calls to reduce the use of cash for everyday

FIGURE 1: Number of unique customer accounts receiving G2P payments by region
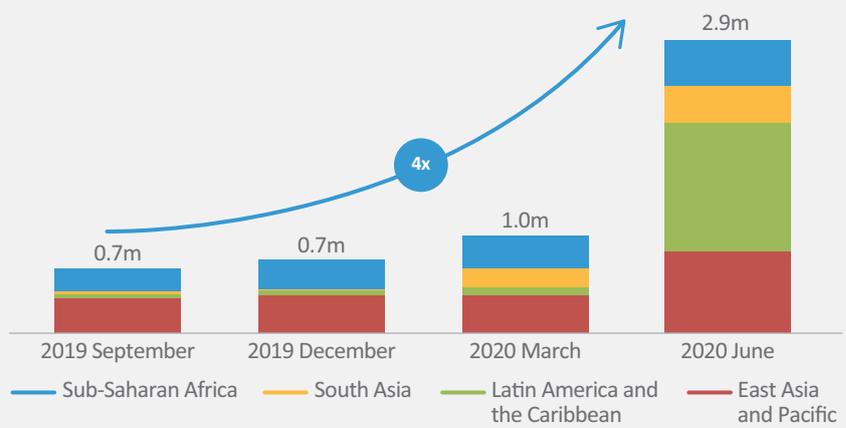
Source: GSM Association (2021).

FIGURE 2: Payment methods for cash transfers in sub-Saharan Africa, before and after COVID-19
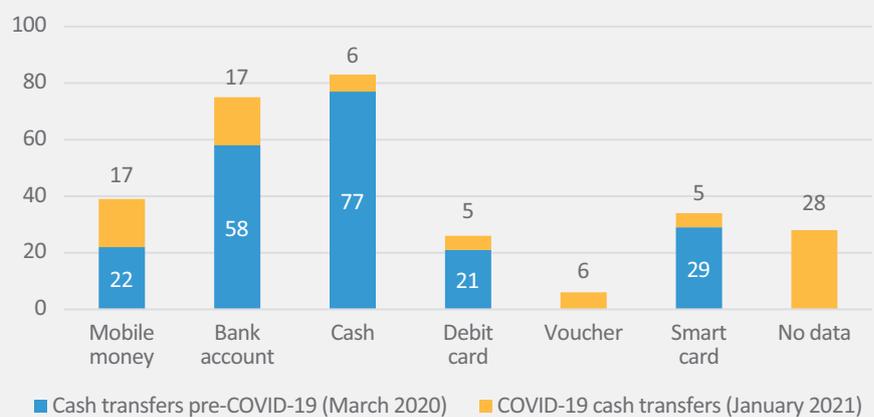
Note: Several programmes used multiple payment mechanisms.

Source: Author's elaboration.

Photo: IMF Photo/Andrew Caballero-Reynolds. Man loads money onto a customer's account at a mobile money stand, Accra, Ghana <*shorturl.at/hnqEY*>.

financial transactions, resulted in a significant increase in the use of mobile payments across the globe. In 2020, the number of registered mobile accounts grew by 12.7 per cent globally—reaching 1.21 billion accounts—and for the first time the value of daily transactions exceeded USD2 billion. In sub-Saharan Africa, the number of registered and active accounts increased by 12 per cent and 18 per cent respectively, while transaction volume and value increased by 15 per cent and 23 per cent respectively.

Mobile money provided an attractive and adequate payment channel for emergency cash transfers and was the most popular payment instrument for cash-based social assistance responses to the pandemic. However, the increased use of mobile G2P payments has, in many cases, not resulted in payment system reforms for pre-existing government cash transfer programmes. Countries such as Zambia, Ghana, Botswana and Namibia that had invested heavily in card- or bank-based payment systems have been reluctant to adopt broader payment reforms, despite having used mobile payments for their emergency response. Even in Kenya, where mobile money was already the predominant payment channel for low-value, everyday transactions, and where virtually all COVID-19 emergency cash transfers were paid via M-Pesa, payments for the *Inua Jamii* cash transfer programme continue to be made into traditional bank accounts.

The reluctance to adopt mobile payments at a larger scale is partly due to the high cost of reforming large and established payment systems, as well as the logistical and administrative implications of having to re-enrol millions of beneficiaries for mobile payments. Additional concerns (especially in countries currently using biometric identity verification) include the difficulty of ensuring that payments sent to mobile numbers actually reach their intended beneficiaries, many of whom change phone numbers frequently. Low levels of digital and financial literacy among certain beneficiary groups, such as elderly people and people with disabilities, pose additional obstacles. Finally, the fact that most beneficiaries prefer to cash out their benefits requires the availability of sufficient funds at mobile pay-out points, including at small shops and individual mobile money agents in rural areas.

In some countries these challenges have been addressed by using bank-led e-wallet payments, disbursed via ATMs or large retail chains. In South Africa, retailers were already doubling as cash-out points for smart card-based cash transfers prior to the pandemic. They have now been on-boarded to disburse the COVID-19 Special Relief of Distress grant, which is paid through a one-time password sent to the beneficiary's registered cell phone number. Other countries are gravitating towards a 'choice model' that will allow beneficiaries to choose from a range of payment options available through the regular national payment system. These typically include payments into personal bank accounts or mobile wallets, cash withdrawals via mobile agents or financial institutions, and—in some cases—pay-

> **" We can expect to see a slow but steady shift towards mobile payments for social cash transfers in the next 5-10 years.**

Photo: John O'Bryan/USAID. Mobile money, Ghana, 2015 <shorturl.at/AENRV>

outs via national post offices or other government pay points. This approach has been adopted for Mozambique's national cash transfer programme, was piloted in Zambia's Support to Women's Livelihoods initiative and Tanzania's Social Action Fund, and has been recommended as a possible payment model for social cash transfers in Botswana.

The transition to mobile cash transfer payments for national social cash transfer programmes is likely to progress more rapidly in East and West Africa, where the mobile money ecosystem, legislation and payment infrastructure are more advanced than in Central and Southern Africa. We can expect to see a slow but steady shift towards mobile payments for social cash transfers in the next 5-10 years, particularly for newly-launched programmes that do not rely on established payment systems. While mobile money services offered by mobile network providers are likely to play a larger role in countries where these services are used widely for everyday transactions (e.g. in most of East and West Africa), bank-based e-wallet payments and cash pay-outs via retailers and small shops represent a convenient option for cash transfer programmes that still rely on traditional cash-, bank- or card-based payments. ●

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1. Centre for Social Science Research, University of Cape Town.

2. Wage subsidies for formal sector workers and other social security responses are not addressed in this article as they constituted less than 10 per cent of the pandemic response in the region.

3. Countries in sub-Saharan Africa that implemented mobile money measures include Benin, Botswana, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Ghana, Guinea-Bissau, Kenya, Lesotho, Malawi, Mali, Niger, Rwanda, Senegal, Togo, and Zambia.

Digitalisation of services and payments:
A development perspective

Alan Gelb, Anit Mukherjee and Brian Webster[1]

Over the past two decades, digital technologies have been increasingly adopted in the delivery of public services and benefits to citizens of developing countries. This article focuses on social protection—in particular the payment of transfers—but also in-kind support such as food rations and subsidies. The transition towards digitalised delivery involves all stages of the social protection value chain and is proceeding at different speeds across countries and programmes. Some have made major investments in the building blocks of digitalisation while others are still lagging far behind. The transition has been accelerated by the need to scale up social protection in response to the shocks to growth and living standards resulting from to the COVID-19 pandemic and associated lockdowns.

In this piece, we discuss the building blocks of digital transformation and how they are being deployed along the value chain. We also consider lessons learned from experience, including those emerging from the scale-up efforts during the pandemic. Even though digitalisation offers many benefits in terms of more effective, integrated and adaptable systems, it also poses challenges related to inclusion and data security/privacy.

The value chain

All service delivery programmes involve a value chain (Figure 1). Providers need to know the identities of potential beneficiaries (individuals or households) and be able to communicate with them, screen them for eligibility, onboard them into programmes, and deliver payments or other services. An effective system should also incorporate feedback from administrative data, beneficiary surveys and grievance redressal mechanisms to reduce exclusion errors and hold providers accountable.

The four essential building blocks for digitalisation are: (i) an identification (ID) system able to guard against multiple identities; (ii) mobile communications; (iii) a digital payment system; and (iv) a social registry or other databases to manage information on applicants and beneficiaries. The first three blocks are commonly known as the JAM—a term coined in India (Gelb, Mukherjee and Navis 2020). Some countries, such as India and Kenya, are well advanced in terms of JAM coverage across the population, while in some others, such as Madagascar, the Democratic Republic of the Congo (DRC) or Mali, coverage levels are still low. Within countries, access is typically unequal across social groups: poor people, women, people with lower educational attainment, and those outside the labour force are less likely to have a national ID (or equivalent), a mobile phone and a bank or mobile money account. There are significant gender gaps in some countries, such as Pakistan; however, intra-household hierarchies persist in others that have substantially bridged these gaps—for example in India, with women's ownership of smartphones. Regarding the data component, some countries such as Brazil and Pakistan maintain integrated social registries that are used across multiple programmes; others, like India or South Africa, maintain multiple, programme-specific databases.

Scaling up

Scaling up social protection in response to the COVID-19 pandemic involved increasing support to existing beneficiaries, extending support to some who were already registered but not previously eligible, and to many who had never previously been part of the system, notably informal workers who lost livelihoods due to shutdowns. In many countries digital application processes, through websites, WhatsApp and other channels, were critical to scaling up these initiatives. Despite occasional channel overload, they attracted large volumes of applications, including multiple submissions and entries from people already receiving benefits (Gelb and Mukherjee 2020).

To winnow down submissions, countries have made use of digital screening against ID numbers and across a wide range of databases to eliminate applicants with formal jobs, existing benefits, or attributes such as assets, which suggested lower priority, which suggested lower priority for support. While a few countries, such as Turkey and Egypt, had this capacity prior to the pandemic, others—like South Africa and Brazil—rapidly developed it as they rolled out their new programmes. One legacy of the pandemic is thus a move

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FIGURE 1: Social assistance value chain
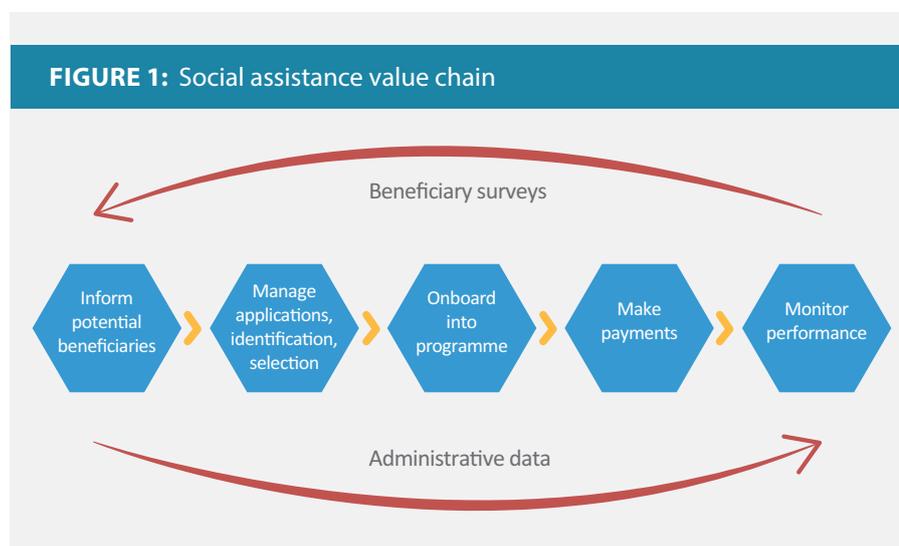
Source: Gelb and Mukherjee (2020).

towards 'virtual registries' that are able to draw on real-time information on a wide range of personal attributes to help target payments, a step beyond traditional social registries merely informed by periodic household surveys.

Digital payments

Prior to COVID-19, systems had already made substantial progress towards digital payments. A survey of 71 programmes in 35 countries found that 36 per cent used cash or analogue instruments, such as checks or money orders, while 64 per cent used digital channels, smartcards or direct deposits into accounts. Almost half provided payments through accounts that offered services other than cashing out. This coincided with two broad global trends: a push towards financial inclusion and increasing access to mobile communications, including mobile-based financial services. Globally, the proportion of adults with financial accounts increased from 51 to 69 per cent between 2011 and 2017. During the same period, the proportion of people receiving government cash transfers decreased by nearly half—from 27 to 15 per cent, although the use of mobile money for government transfers remained modest.

The 2020-21 scale-up accelerated the transition. Millions of new bank accounts were created to receive benefits and some countries distributed support through digital vouchers. Mobile money was used in about half the cases. Technology was instrumental, with countries that were able to use digital systems to manage both registration and payments scaling up more, and more rapidly, than those that were not (Beazley, Marzi and Steller 2021, Gentilini 2022, ID4D and G2PX Annual Report 2022). Usually, countries in the first group were able to build on prior investments in JAM, but some examples show how those with relatively few digital assets were still able to innovate. Togo leveraged the information in its voter ID system to deliver support through mobile money to millions of residents of urban areas affected by lockdowns. With even fewer digital assets, the DRC built on mobile phone data to target poor residents who had no access to smartphones and who were living in low-income areas, with payment through mobile transfers.

Risks and benefits

Digital technologies can facilitate the reform of costly, distorting and environmentally harmful price subsidies on fuels by shifting towards direct compensatory transfers, which better target the poor. Digital feedback loops drawing on administrative data, beneficiary surveys and grievance filings can build on the vast cache of information generated by digital systems to help mitigate poor service or exclusion errors. When combined, these systems can provide real-time governance indicators to help performance monitoring and oversight; however, this capability remains underexploited.

They also introduce risks that must be recognised and mitigated. One concern is the potential exclusion of the many vulnerable people and disadvantaged

> " Digital technologies can strengthen social protection. They can also facilitate the reform of costly, distorting and environmentally harmful price subsidies on fuels.

Photo: Fiona Graham/WorldRemit. Smartphone showing a mobile money transaction in Kampala, Uganda, 2016 <https://rebrand.ly/1mrbdey>.

FIGURE 2: Development of digital finance in India
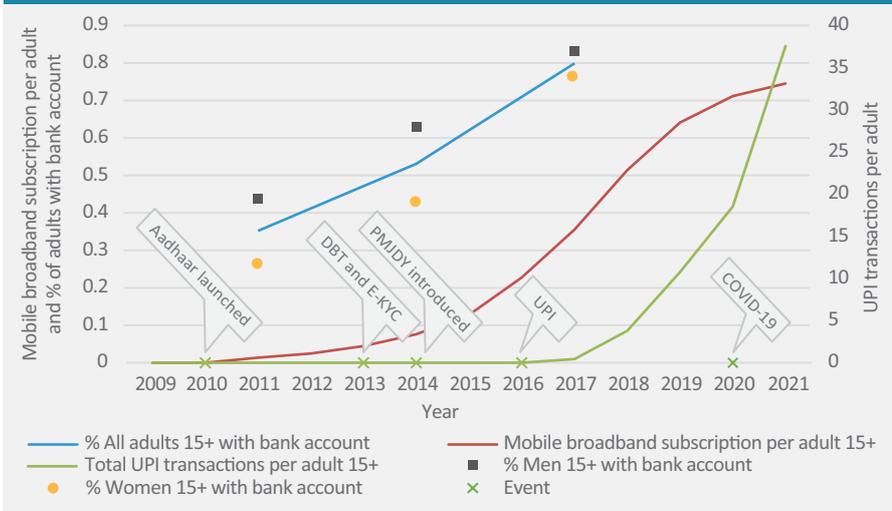
Note: The 2021 figures are estimates, assuming a growth of 1.23 per cent in the adult population and 6 per cent growth in broadband subscriptions.

Source: Authors' elaboration with data from the World Bank (2 November 2022) and the International Telecommunications Union (2 October 2022).

social groups still lacking a formal ID, mobile or financial accounts, or the capacity to navigate digital interfaces. This is not only an issue for poor countries: moves to digitalise social support in the UK have come under intense criticism for similar reasons (Alston 2018). Technology can automate the 'back end' of service but not fully substitute for the human element at the 'front end'—systems to serve the poorest must be both 'high tech' and 'hi-touch'. Some, as in Turkey, combine sophisticated, centralised data analytics with decentralized case management to preserve some degree of local autonomy.

Another emerging concern is the potential for loss of privacy, increased surveillance, or misuse of data due to the increasing centralisation and/or inter-operability of a widening array of personally identifiable information. Legal frameworks and capacities for data protection are still under-developed in many countries. Data errors can propagate across programmes, complicating resolution; trust can be eroded when eligibility decisions are made by complex algorithms, possibly including artificial intelligence (AI), with confidential criteria to prevent applicants from manipulating scores and gaming the system. It is thus not possible to explain to a rejected applicant why their neighbour was approved for assistance while they were not.

Regarding payments, many studies suggest that—when carried out effectively—digital delivery offers advantages to many beneficiaries, including women, over traditional cash handouts, including convenience, flexibility and control. But the need to service diverse beneficiaries with more or less capacity and sometimes living in remote areas highlights the need for flexibility. Some will be able to take advantage of competitive payment providers while others will need assigned providers or special arrangements. Moreover, even as some beneficiaries transition to a broader use of financial services—a potential extra benefit from providing them with accounts—yet others will never become customers beyond receiving benefits and cashing them out (Gelb, Mukherjee and Webster 2022; forthcoming).

The case of India
Building the infrastructure for a digital transition extends far beyond technology; it requires long-term vision, legal and regulatory reforms and a policy focus on opening access to as many people as possible—a conceptual move from siloes towards digital platforms, including of public goods (Mukherjee and Maruwada 2021). India offers an example, as summarised in Figure 2. The first building block was the *Aadhaar* ID system, which

> Building the infrastructure for a digital transition extends far beyond technology.

was launched in 2009 and mandated for social beneficiaries. By 2013, over half a billion people were enrolled, with gains continuing. That year also witnessed the introduction of the Direct Benefit Transfer (DBT), which unified payment arrangements for multiple schemes by delivering benefits through *Aadhaar*-linked bank accounts. The DBT was followed in 2014 by the *Pradhan Mantri Jan-Dhan Yojana* (PMJDY) financial inclusion initiative, which resulted in the opening of some 400 million new accounts, half of which were owned by women. The introduction of electronic Know-Your-Customer (e-KYC) to provide instant, remote authentication for the opening of accounts—one of a 'stack' of facilities based on *Aadhaar*—sharply reduced the cost of customer due diligence (CDD). The 2016 Unified Payments Interface (UPI) ensured payment interoperability across all accounts; by then, *Aadhaar* had reached over a billion enrolees. By 2017, financial inclusion (as measured by bank account ownership) had increased to 80 per cent of India's adult population.

At the same time, ongoing reforms in the telecommunications sector paved the way for digital communications. With intense competition, mobile broadband subscriptions and smartphone ownership soared as data prices fell to the lowest in the world. Digital payments took some time to get off the ground, but with smartphone-based apps such as PhonePe and Google Pay and low-cost merchant onboarding using QR codes, they took off. By late 2021, macroeconomic effects were observable, such as a slowdown in the demand for physical cash and a reduction in cash-based black-market activity.

India's process of digitalisation of social protection has had its share of controversy, with support from some quarters and criticism from others (Drèze et al. 2018). Large-scale surveys conducted for the State of Aadhaar Reports (Totapally et al 2019) indicate that the large majority of respondents support digitalised delivery, perceiving that it offers greater control and less diversion than previous systems. At the same time, the surveys indicate small percentages of respondents who claim that the change has excluded them from benefits. Studies in different states confirm that context matters, and that exclusion is more

Photo: UN Women/Gaganjit Singh Chandok. Mobile application, India, 2012 <*shorturl.at/gjlCD*>.

likely when the main motivation is to save resources rather than to improve services.

As the initial shock of the COVID-19 pandemic recedes, social protection systems in many countries face severe stress, caught between tightening fiscal space and urgent needs, including to buffer against continuing shocks. There is no doubt that digital technology has greatly enhanced the reach and delivery of social protection systems and that some countries have been very innovative in applying technology and using data in new ways. However, there is still enormous scope for improving performance and reach as countries look beyond their pandemic responses to make strategic choices on the design and delivery of social protection over the long term. As was the case before and during the pandemic, technology is not a 'silver bullet'. It poses risks, notably the exclusion of the less connected and the erosion of data privacy, and must be embedded in beneficiary-centric design and implementation, with particular focus on improving services and seeking positive externalities. ●

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What can we learn on data, digitalisation and governance from humanitarian cash transfers? Experiences and reflections from HOPE

Jenn Yablonski and Abd Al rahman Faour [1]

Over the past 5 years, UNICEF has significantly scaled up its use and support of cash transfers in humanitarian contexts. This echoes similar shifts in other agencies and donors, as part of broader humanitarian reform and commitments to greater use of cash transfers under the Grand Bargain, World Humanitarian Summit and Agenda for Humanity. For UNICEF, the timely delivery of child-sensitive humanitarian cash transfers at scale is key to achieving better results under the Core Commitments for Children in Humanitarian Action.[2]

In the delivery of humanitarian cash transfers (HCTs), UNICEF seeks to fulfil its dual mandate as both a development and humanitarian agency. It supports the use of government programmes and systems to the maximum extent possible, including strengthening of social protection systems before, during and after crises. At the same, the organisation's humanitarian mandate also requires direct delivery of humanitarian cash in some contexts to ensure timely and impartial delivery to children and their families.

For these contexts specifically, UNICEF has developed a Humanitarian Cash Operations and Programme Ecosystem (HOPE), a Management Information System (MIS) for managing HCT programme data. Similar to the MIS of long-term social protection systems, HOPE enables HCT programmes to manage data related to registration and targeting of programme participants, payment cycle management, grievance redressal and feedback, and financial and programmatic reporting. Since its launch in April 2021, HOPE has been used in 12 countries to register two million individuals and deliver USD150 million to children and households affected by humanitarian crises.

The development and use of HOPE have been governed by a set of data protection and humanitarian principles, including the principles for digital development. The evolving experience of applying these principles in practice offers various insights, as well as open questions, which are of interest to the subject of this issue of *Policy in Focus*. This article will concentrate on three areas: (i) HOPE's commitment to the 'preservation' principle and broader data integration; (ii) HOPE at the edge of the humanitarian-development nexus in terms of governments and data; and (iii) the implications of digitalisation for accountability to populations affected by humanitarian crises. While these experiences come from HCT programmes, we feel they offer reflections for social protection systems more broadly.

HOPE as an ecosystem

An important principle guiding HOPE's development was 'the preservation

FIGURE 1: HOPE high-level architecture
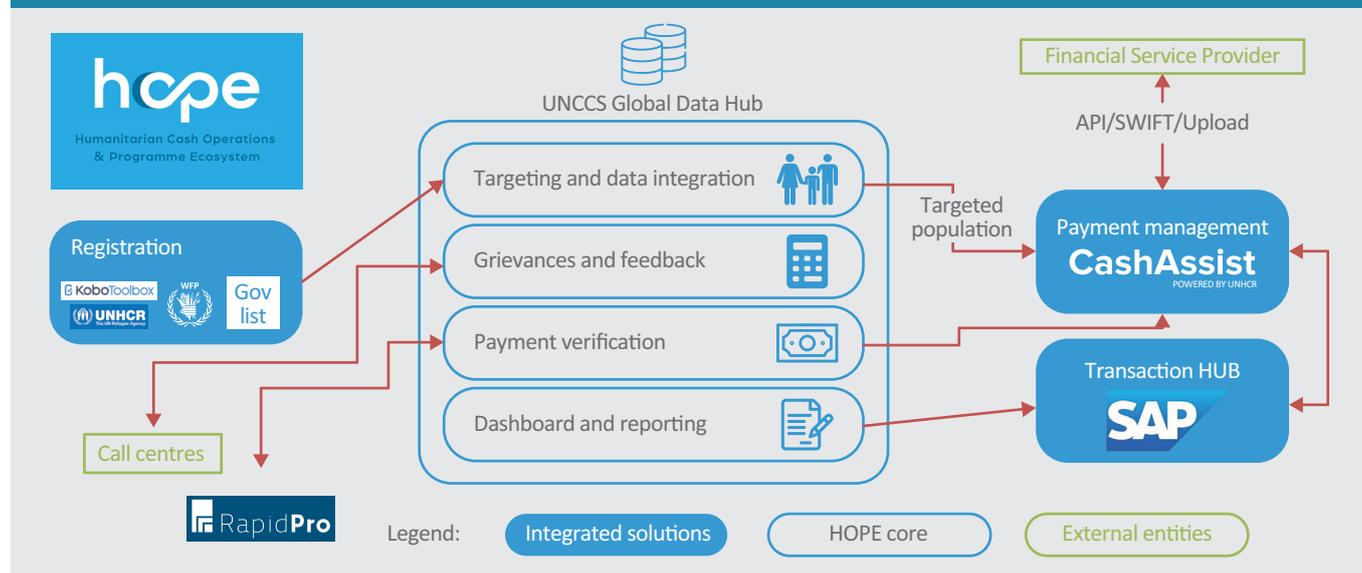
Source: UNICEF (internal documentation).

principle', or the 'reuse and improve' principle. The basic idea is to use existing tools and solutions which align with UNICEF's mandate to the maximum extent, and only to develop software where these do not already exist. The 'ecosystem' in the HOPE acronym reflects the fact that it relies on and links with a number of systems that previously existed both within UNICEF and with other humanitarian actors. For example, HOPE does not have its own registration module but rather imports data from either existing data collection (e.g., from governments or non-governmental organisations—NGOs) or the KoBoToolbox, a data collection tool broadly used in humanitarian contexts. Another example is the interface between HOPE and UNICEF's RapidPro platform, which allows HCT programmes to communicate and share information with programme participants via real time messaging services.[3] Figure 1 depicts the overall HOPE system, with the 'core' system in the middle box and its links/integration with KoBoToolbox for registration; Microsoft Dynamics–CashAssist powered by UNHCR for entitlement calculation and payment approval and SAP UNICEF Enterprise Resource Planning (ERP) software to monitor alignment between fund commitments and payment to programme participants.

This approach has had numerous implications from a governance and implementation perspective. Critically, it has encouraged and supported coordination with other humanitarian agencies and systems, particularly regarding data sharing and integration. In some cases, it has facilitated broader programme coordination. On the operational side, it has reduced the overall cost of developing the HOPE software and sometimes facilitated quicker response—for example, where there is existing or ongoing data collection. At the same time, the experience of using HOPE also underlines that there can be significant challenges in applying the preservation principle, particularly in the practical, operational aspects of relying on external systems for the MIS' critical/core functions. The 'contact points' where HOPE integrates and exchanges data with external systems are often where

technical problems arise. The resolution of these issues depends on external partners, which requires coordination and a significant time investment even where there is good will. These challenges have sometimes led to negative impacts on programme results, including delays in payments.

HOPE, governments and data

As previously mentioned, an overarching principle of UNICEF's work in supporting HCT programmes and social protection more broadly is the strengthening of national systems. Even when assessments indicate that a direct implementation by UNICEF is necessary, the organisation tries to identify where aspects of government systems or data can be used and/or there can be a process of transition/handing over of the programme and data over time.

In terms of HOPE, this dovetailing with government systems happens in diverse, context-specific ways. For example, in the context of the immediate humanitarian response to the war in Ukraine, while UNICEF discussed with the Ukrainian Ministry of Social Policy the possibility of using existing government data or topping up existing programmes, the Ministry agreed to a parallel HCT programme in light of both the urgent need and legal data-sharing restrictions. In Nepal and the Philippines, local governments have been testing the use of HOPE to support anticipatory action disaster response and preparedness by using existing local government data on vulnerable households and facilitate quicker local response (including in areas where national government cannot/ is unwilling to respond). These latter cases also reflect a growing interest in how HOPE can support implementation of shock-responsive social protection programmes and exploration of how its software might be able to support the development and strengthening of national MISs (see more below on Open Source software).

At the same time, the realities of humanitarian contexts pose situations where the default of strengthening national systems comes in conflict with humanitarian principles, including cases where strong national systems exist.

Examples include countries where the government is a protagonist in the conflict, or where sharing personally identifiable household information may put vulnerable populations at risk. Even in relatively 'benign' contexts, dilemmas arise where these principles clash. The timeliness of assistance is another important element in humanitarian aid. Ensuring that the process of strengthening systems "does not impair the flexibility and rapidity of the humanitarian response," as outlined in the Organisation for Economic Co-operation and Development (OECD) recommendation on humanitarian development nexus,[4] guides the use of HOPE (OECD 2019).

Accountability to affected populations

When we think about data, digitalisation and governance, we often think about issues related to ownership, data agreements, integration and interoperability, and institutional frameworks. We do not often discuss whose data is at stake and what the impacts (intentional or not) of their use will be for programme participants. So far, the experience with HOPE has been a learning process that sheds light on why thinking about the accountability side of governance is critical in cash transfer MIS systems and the related use of digital tools.

Data protection of personally identifiable information (PII) and accountability to affected populations in humanitarian contexts are key principles in UNICEF's work. The need to have a stronger system to safeguard PII in the delivery of HCT programmes was a key driver of HOPE's development. Data protection does not mean only data security: it has wide-ranging implications across MIS systems when we think of ourselves as caretakers of personal data, including from vulnerable populations and children. For example, user roles[5] in most MISs are defined in terms of function (programme, finance, grievance, etc.) or level of authority. HOPE's use in contexts where programme design, delivery and data are highly sensitive highlights the need to further segregate and partition data access along additional axes, for example by very specific geography, or additional granularity in the segregation of roles.

Similar to other social protection MISs, HOPE includes a module for participant grievances and feedback, including sensitive issues such as sexual exploitation and abuse. Of the original modules included in its design, this is the one that has required the most substantial updating in terms of its capabilities. As use of HOPE has scaled up in terms of volume of households and number of countries, the level of sophistication required to use this module for programme functions that truly enable greater transparency and accountability, such as two-way communication with programme participants and management of grievances to enable real feedback and follow-up, continues to evolve. While MISs hold great potential as tools for enhancing accountability, this requires fully thinking through the implications in programme design and implementation, and appropriate human resource capacity to implement the related functions.

The road ahead
HOPE is a relatively 'young' digital solution, and it will continue to evolve in response to HCT programme needs. In the immediate road ahead, there are two areas worth highlighting in the context of governance and digitalisation.

The first is HOPE's plan to become an open-source solution by 2023. From its inception, the intention was for HOPE to become available as a digital public good and this has guided a number of choices in its development (for

example, prioritisation of systems using open source software to be integrated into the ecosystem). This objective is critical to UNICEF, to allow others in the humanitarian community to benefit from the investment that the institution has already made in developing HOPE's software. Making the software publicly available may also support strengthening national MISs by allowing governments to utilize and adapt the software for national contexts, either as a whole or on a per-module basis. This is also intended to contribute to the broader work around digital convergence within the social protection community.

The second area in the road ahead entails continuing to enhance functions related to accountability. In addition to the points mentioned above, there are two critical dimensions to this area. The first is exploring ways in which programme participants can access their own data and information, and more generally the decentralisation of relevant data to end users. In the context of the crisis in Ukraine, HOPE has created an online self-registration form to allow potential programme participants to directly input their information. In this highly literate and digital context, there has been strong public engagement with the programme, including expression of frustrations. One of the many innovations emerging from this experience is that HOPE has begun development of a function to enable people who have registered to check the status of their application. The second dimension is the need

to assess the extent to which HOPE's various digital functional options—including SMS communication, online registration, etc.—further inclusion or exclusion due to factors such as literacy and mobile/internet access; and to then test modalities that combine online and offline modalities that enhance access, transparency and communication for all populations.

These two areas also highlight specific opportunities for reinforcing linkages between MIS in HCT delivery and social protection systems. UNICEF welcomes collaboration with other partners on a forward-looking agenda which continues to advance the availability of open source software for managing cash (and other social assistance) programmes and encourages the continuous improvement of beneficiary-centred data systems. ●

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1. United Nations Children's Fund (UNICEF).

2. See: <https://www.unicef.org/emergencies/core-commitments-children>.

3. HOPE functionality to enable 2-way communication—i.e., feedback and requests from programme participants—is currently under way.

4. See: <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-5019>.

5. User roles define who is able to do what within the MIS in terms of both viewing information and performing functions.
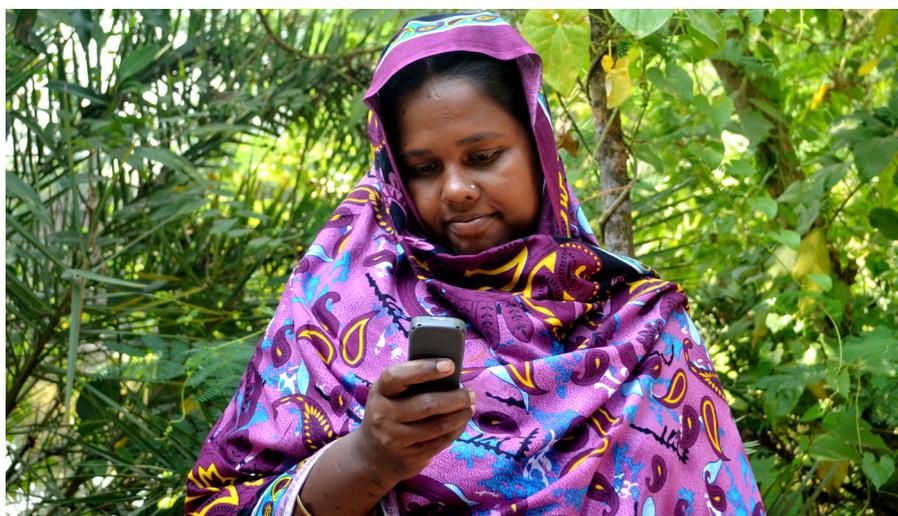
Photo: WorldFish. Woman farmer receiving mobile money, Bangladesh, 2014 <shorturl.at/mnJZ2>.

" MISs hold great potential as tools for enhancing accountability.

The Brazilian Single Registry in a post-pandemic scenario: Opportunities and challenges of digitalisation

Denise Direito[1] and Cláudio Machado[2]

Since the onset of the COVID-19 pandemic, there has been a significant increase in the access of the Brazilian population to the Internet. Currently, 83 per cent of households—81 per cent of the population—access the Internet in some capacity. Despite these encouraging figures, structural inequalities persist in the country, with significant differences in access figures across social classes, regions and race/colour, among other variables (CETIC 2021).

The State has been monitoring this growth. Initially, information and communication technologies (ICTs) played a key role in the search for greater efficiency in administrative management and/or in the automation of tax administration. However, the provision of public services intermediated by digital means has since become part of everyday life. According to a 2020 survey (ibid.), 70 per cent of internet users—96 million people—state that they use some kind of digital government service.

Social protection policies also reflect this situation. This article seeks to contribute to the debate on the digitalisation of social protection policies, analysing the federal government's Single Registry for Social Programmes (CadÚnico) as a central tool in the operationalisation of social benefits and services for the reduction of social vulnerabilities.

The Single Registry (CadÚnico)

CadÚnico pools the potential beneficiaries of various social programmes into the same database, ranging from cash transfers—such as the *Bolsa Família* programme (which has now been replaced by *Auxílio Brasil*)—to the reduction of utility bills and affordable housing programmes, among others.

Thus, it is characterised as a 'single window service' (Barca and Chichir 2014; Leite et al 2017), and has been used as a targeting mechanism for over 25 programmes (Direito et al. 2016). In June/2022, CadÚnico encompassed 87 million people in 36 million households, 19 million of whom were in extreme poverty.

Citizens should seek out municipal administrations to fill in and periodically update their household data, avoiding sending data to various agencies. The trade-off is that there is a partial loss of direct contact between beneficiaries and policy administrators, since the delivery of benefits/services is carried out by service providers or banks. This allows solving more difficult problems (Direito and Koga 2020). Municipal administrations are responsible for direct contact with the population, promoting a wide dissemination of the system. Thus, the adoption of a benefit management system allied with a management information system (MIS) is recommended for municipalities to provide more adequate information about the benefits and services offered through the social protection network.

From a management perspective, CadÚnico provides more in-depth knowledge about vulnerable populations, which allows for a better understanding of the multidimensional aspects of poverty. By simplifying benefit delivery, this tool has made it possible to combat fraud in the social protection system. Currently, this is mostly accomplished by cross-referencing beneficiaries' personal data against administrative databases, which allows to identify, for example, underreported income. However, the excessive and indiscriminate use of databases can lead to the unwarranted exclusion of beneficiaries due to inconsistencies in the databases used. One can fall prey to the "spiral of rigour" (Dubois 2021, 57) with the adoption of increasingly restrictive controls and exclusions. Thus, the more vulnerable the household, the more difficult it is to understand the complexity of the process and how to appeal undue exclusions.

CadÚnico and the COVID-19 pandemic

In Brazil, social distancing and movement restriction measures were implemented in March 2020 in response to the health crisis, which led to a deterioration in the socioeconomic situation of the population, especially those in the informal labour market (Souza 2022). This situation was mitigated by the rapid implementation of the emergency cash transfer Emergency Aid (*Auxílio Emergencial*—AE).[3]

The definition of objective criteria for the selection of beneficiaries played a key role in the implementation of the AE (Cardoso 2020). CadÚnico is one of the key sources of data for informal workers, in addition to self-declaration with subsequent checks.

An app (ExtraCad) was developed for the inclusion of unregistered informal workers in CadÚnico. This app covered the people who had a higher level of income but lost it due to the economic fallout of the pandemic.

In this sense, CadÚnico should play a key role in covering those at the bottom of income distribution. However, the period 2020-2022 highlighted some of its limitations. As it was not possible to maintain the level of service while filling out the exhaustive form, ExtraCad was temporarily adopted to collect basic information regarding unregistered households, and it was used to pay almost 50 per cent of the households in the first round of the AE (Cardoso 2020).

The protracted nature of the pandemic made it difficult for new families to enrol in CadÚnico and update their registration information every 2 years. In March 2022, 28 million households were registered in CadÚnico, 82 per cent of which had updated information. In October 2021, only 58 per cent of the database was updated. Figure 1 shows the outdated information and the subsequent

FIGURE 1: Registered and up-to-date households in CadÚnico—
January 2020 to May 2022
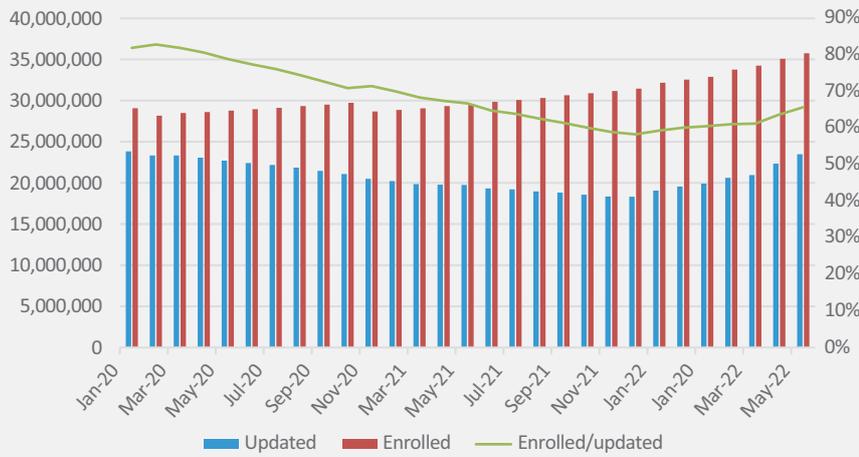
Source: Authors' elaboration based on data from <*aplicacoes.mds.gov.br*>.

> " The protracted nature of the pandemic made it difficult for new families to enrol in CadÚnico and update their registration information.

growth in the number of registered households after the health crisis started slowing down.

This process resulted an unprecedented amount of outdated information in CadÚnico, with increasing reports of queues and precarious service provision in municipal service stations.

Another impactful aspect of the AE's implementation was the requirement of a regular Individual Taxpayer Registration (*Cadastro de Pessoas Físicas*—CPF) number (Tebet Marins et al. 2021). The CPF regulation, issued by the Brazilian Federal Revenue Service, provides for suspension based on the tax logic,[4] that is, adequate administration according to the tax authorities, but is not coherent as an identity number, since civil identity cannot be 'suspended' due to inconsistencies in registration or non-observance of tax rules (Machado 2020). This issue demonstrated the need for better coordination between e-government initiatives and CadÚnico.

CadÚnico and e-government
ICTs are now an integral part of governments. The concept of 'government as a platform' was institutionalised in Brazilian legislation as "technological infrastructure that facilitates the use of publicly accessible data and promotes interaction between various agents, in a safe, efficient and responsible manner, to foster innovation, the exploitation of

economic activity and the provision of services to the population".[5]

In tandem with increasing rates of Internet access by the population, the supply of public services through digital service channels has been on the rise. The <www.gov.br> portal, implemented by the federal government, provides almost 4,000 services.

The provision of public services through digital means presupposes the ability to securely identify users. To this end, the gov.br platform implemented the Citizen Identification Service—(*Serviço de Identificação do Cidadão*—SIC). This is not a new database, but rather an integration bus between existing databases that allows updating registration information in a simplified and secure way.

In the search for a strong identity, the SIC started considering the CPF as more than simply a tax registry identifier, but also as a national identity number, replacing the Civil Registry (*Registro Civil*—RG), which had numerous shortcomings. Likewise, the RG is gradually being replaced by a new National Identity Card—CIN, which adopts the SIC as interface for the exchange and consolidation of citizens' identity information.

Due to the importance of both systems, it is necessary to seek to integrate CadÚnico with the SIC. This would lead to new possibilities regarding registry updates and transparency in data processing.

Photo: Marcos Rocha/FDR. Emergency Aid app, Brazil 2021 <https://bit.ly/3AJRfT5>.

In addition, Valente (2021) highlighted that this step is crucial to adapting the CadÚnico to comply with legislation regarding personal data protection.

Under the current format, registration and updating of beneficiary information in CadÚnico is carried out exclusively in person by the municipal administrations. To speed up the service and reduce transportation costs, it would be crucial to offer virtual service options. In this sense, having a strong identity, including in the digital realm, becomes a priority, and CadÚnico has much to learn from the initiative and processes implemented by the SIC.

Naturally, the continued digital exclusion of a significant share of the population should always be pondered, requiring the provision of multichannel solutions to maintain direct contact between management and citizens who are resistant to or unaware of ICTs, or even to clarify doubts and relay relevant guidelines. In addition, face-to-face service provides valuable opportunities to identify other vulnerabilities—such as the deprivation of rights, domestic violence, etc.—and to provide adequate referral. Thus, it is necessary to simplify the bureaucratic procedures of documentary verification and/or mere assessment of data, leaving service free to effectively seek to reduce social vulnerabilities.

There were difficult lessons to be learned from the pandemic. It shed light on issues that were obfuscated by routine and habits. Two aspects are crucial to the furthering of social protection, considering CadÚnico. First, the simplification of data input and maintenance, using the full range of ICTs to the benefit of the population. Not as an obstacle or punishment, but as a tool to provide visibility to their needs and conditions and adequately meet them.

The second aspect is the improvement of the information relayed to municipal administrations through the development of a new information layer—system—which includes granted and/or withheld benefits. This would facilitate a better understanding by the population of the services and benefits on offer. ●

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Open source in social protection

Rodrigo Assumpção[1]

In May 2022, the Digital Convergence Initiative, a joint effort by USP2030 members, governments, development partners, civil society and the private sector aimed at creating integrated and interoperable social protection information systems, promoted a workshop involving some of the different open source initiatives being used in social protection projects worldwide. The event aimed to contribute to an interoperable open-source suite of solutions for different social protection business process needs. It highlighted seven different systems that are currently being implemented in projects around the world:

The Humanitarian cash Operations and Programme Ecosystem (HOPE) is used for managing humanitarian cash transfer programmes linked to UNICEF. Currently there are implementations in Afghanistan, Bangladesh, the Central African Republic, the Democratic Republic of Congo, Sudan, South Sudan, Antigua and Barbuda, Myanmar, Philippines, Ukraine, and Yemen.

CORE-MIS, a web-based application designed to support cash transfers and economic inclusion programmes. Supported social protection schemes include conditional and unconditional cash transfers, public works programmes, training programmes, saving groups,

communication campaigns, grievance redressal mechanisms, and targeting initiatives. It is currently implemented in Zambia, Sierra Leone, Guinea, Togo, and Mozambique.

OpenG2P, an open-source framework, reference architecture and deployable software building blocks for end-to-end digitalisation of social protection programmes—including enrolment, beneficiary management and recourse, and payment and bulk delivery. The social protection schemes supported include cash transfers, vouchers, in-kind transfers, International Labour Organization (ILO) social security instruments, subsidies, pensions as well as deposits, loans and credit for individuals, small and medium enterprises (SMEs), and groups. The system is being implemented in Sierra Leone and the Philippines.

Mifos, a set of building blocks for core banking and payment orchestration. It is a cost-effective, integrated banking infrastructure that enables Institutions to rapidly open bank accounts in the cloud to reach underbanked populations. It provides integration and financial orchestration to interoperable payment systems. The social protection needs supported by this software solution include social transfers, cash transfers, in-kind transfers, vouchers, deposit schemes, digital wallets, vouchers, benefits as well as

short and long-term lending programmes for individual, SMEs, groups, and accounts. It is currently implemented in over 500 private sector institutions, serving over 20 million individuals across 56 countries including micro finance institutions, savings and credit co-operative societies, banks, financial technology companies (fintechs) and telecommunications operators. In the public sector it is present in Mexico, India, and Sierra Leone.

Mojaloop, an open-source solution to comprehensive financial inclusion that supports payment routing, peer-to-peer (P2P), monetary financial institution loans (repayment and disbursal), government-to-person (G2P), salaries, merchant payments, as well as integration with fintechs. It is currently functioning in Myanmar, Tanzania and Rwanda.

MOSIP, a foundational digital identity platform for ID issuance and verification, it supports identity verification and know-your-customer (KYC) procedures during onboarding; identity verification at time of availing service and can integrate with any functional ID. The current implementations are in the Philippines, Sri Lanka, Morocco, Togo, Ethiopia, and Guinea.

OpenCRVS, a global solution for civil registration and vital statistics (CRVS). In addition to its basic functionalities, it also supports the notification of a vital event occurrence to a social protection scheme for enrolment or discontinuation, identification of eligibility of individuals for specific benefits as well as the use of civil registration data for enrolment. It is being piloted in Bangladesh and tested in Zambia, Niue and Nigeria.

openIMIS, a tool to manage social protection schemes that supports both formal and informal, contributory and non-contributary schemes of national health insurance, community-based health insurance, voucher schemes, employment injury insurance as well as unconditional cash transfers. The current implementations are in Nepal, Tanzania, Cameroon, Chad, DRC, Mauritania, Niger, and The Gambia.

Photo: Casey Dlott/USAID. Women using mobile money, Ghana, 2015 <shorturl.at/aLPZ8>.

> **openIMIS is a programme management tool that supports both formal and informal, contributory and non-contributory schemes.**
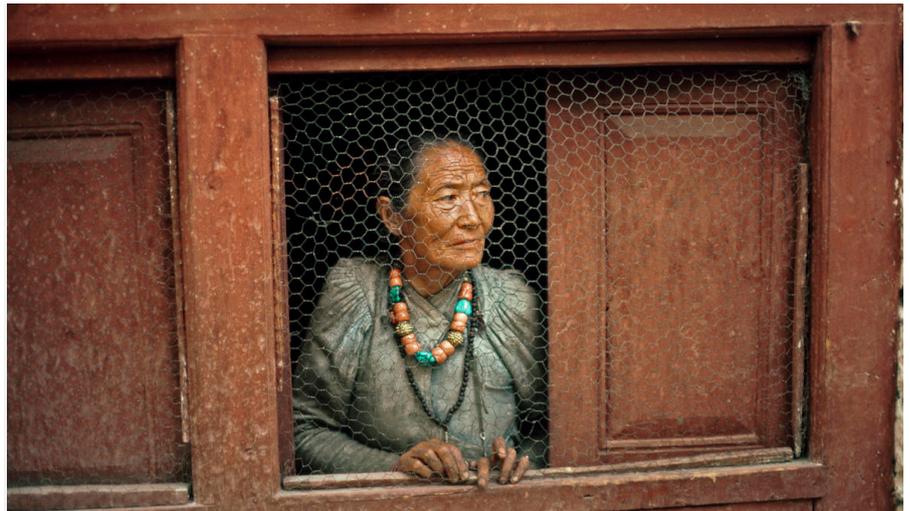
Photo: United Nations Photo. Elderly woman in Nepal, 2004 <shorturl.at/pyCHQ>.

As can be seen, the event presented a small selection of open-source software (OSS) being used in social protection worldwide. The focus was to map out potential collaboration opportunities between projects and discuss the need for common standards for these systems to facilitate interoperability without needing to develop complicated application interfaces.

ILO and openIMIS

The ILO has been involved with the use of OSS in social protection for a few years and has joined forces with the openIMIS Initiative to help expand its functionalities and adoption. The Initiative was founded and is financed by the Swiss Agency for Development and Cooperation (SDC) and the German Ministry of Economic Cooperation and Development (BMZ). The initiative's Coordination Desk is run by the Deutsche Gesselschaft für Internationale Zusammenarbeit (GIZ), which funded the ILO's participation to help improve the management and administration of social protection schemes in target countries and expand the systems' capacities beyond healthcare. This project is operating in several countries and institutional settings.

In Pakistan, the ILO is using openIMIS to develop and implement an MIS system to take care of the Baldia Arrangement files and Data. This arrangement refers to the pensions of the victims of the Ali factory fire, quite similar in functional terms to an employment injury scheme (EIS)—limited, for now, to those affected by the disaster. This project is carried out in partnership with the Sindh Employees' Social Security Institution (SESSI) as the local stakeholder.

In Bangladesh, in close cooperation with GIZ, the ILO is using openIMIS to develop and implement an EIS pilot to establish the necessary administrative processes of the pilot scheme as well as its transition into a permanent employer-financed EIS at the end of the project term.

In Burkina Faso the local stakeholder involved is the *Caisse Nationale d'Assurance Maladie Universalle* (CNAMU) and in partnership with them the ILO is establishing the standard operating procedures (SOPs) to define the necessary software customisations to adapt it to the institution's needs, as well as alterations in procedures so that the software may be used more efficiently. Full use and implementation will follow these steps.

In Nigeria, the ILO and the Kaduna State Contributory Health Management Authority (KADCHMA) are conducting a business process analysis to define and customise openIMIS. An interesting element of this implementation is that it is being followed closely by the National Health Insurance Scheme (NHIS) to see if there are possibilities of expanding its use to other similar State health authorities.

The most interesting and comprehensive OSS implementation the ILO is currently working on is in Nepal. The Social Security Fund (SSF) has decided to substitute its legacy system for openIMIS. This will allow for the development of several

new modules beyond the current, health-focused capabilities of the latest version of the software. At the end of this implementation openIMIS will be capable of handling all the MIS requirements of a social security institution. The SSF provides, among other benefits, health insurance, maternity benefits, accident and disability benefits, pensions (including survivors') and old age benefits. The development and implementation of all these schemes in the openIMIS modular framework presents a challenge and the resulting software will have to deal with all of the institution's administrative and data analysis needs. Nepal already has the largest openIMIS implementation operating in the Health Insurance Board (HIB) with the support of GIZ. With the development of the social security version for the SSF, the country will consolidate its capacity to run, maintain and possibly expand this software even further.

OSS: planning, trade-offs, governance, and management

All implementations conducted by the ILO begin with an assessment of the ICT environment, business processes and institutional requirements. After a customisation of the software, there are testing, training, and handover steps. The challenges of choosing, acquiring, customising testing suites, implementing, and operating sophisticated systems, whether OSS or proprietary, are similar. However, the institutional ownership and control integral to OSS operating systems often lead to institutions understanding the permanent need to evolve, transform and improve how services are delivered.

Digital transformation activities often start with the implementation of management and control processes that will furnish the large quantities of data and information necessary for the realisation of the strategic plan. This is a continuous process, in which the plan defines management and control implementation processes that provide more and better data and information. The implementation process also generates the necessary controls and procedures to execute the decisions and choices determined by governance. This, in turn, allows for better, broader and more ambitious strategic choices. This process is a journey, not a destination—a journey

of learning how to do better in order to be able to do more. Obtaining higher maturity levels of capacity and performance in governance and management is one of the important goals of the process.

The governance and management of ICT and data is a constant balancing act of conflicting choices and trade-offs (ILO and UNDESA 2021). Stability versus flexibility; capacity versus investment; adapting business processes to systems instead of vice-versa; open source versus licenced software; contracting cloud services versus owning data centres; security versus interoperability; outsourcing versus in-house development; performance versus innovation—the list goes on and could be presented in several different combinations. The need to make these choices is constant and always based on specific contexts. The broad scope of this activity is concerned with the organisation, implementation, and operation of systems. This means defining principles, strategies, processes, and roles related to ICT activities in general, as well as managing data, infrastructure and investments and ensuring business continuity in the technological environment. Institutional governance defines the policies, monitoring and incentives related to transparency, stakeholder involvement, accountability and responsibility for financial, physical, human, intellectual property, ICT, informational and relational assets. It is a broad mandate that determines the strategies that will orient institutional development over time.

ICT governance generally focuses on who decides what, when and how. It defines what are the right things to be done and how to do them right. It helps institutions to monitor ICT decisions and balance critical decisions on investments, infrastructure, architecture, ICT principles, and business process alignment. ICT governance decisions formalise the relevant goals for ICT-related activities.

On the other hand, ICT management defines the structure, processes and controls for planning, developing, executing and monitoring the activities necessary to reach the strategic goals and policies established by ICT and corporate governance

For this alignment to be effective, it must be understood and conducted with the participation of all areas of the institution. This is especially relevant for entities responsible for the business processes of service provision. The definition of organisational strategic goals allows for the definition of strategic ICT goals that can be consolidated in a broad institutional planning process. The most common result is a constantly evolving yearly action plan that describes the concrete actions to be conducted within the time frame. This formalises the objectives, institutional alignment, responsibilities, budget and interdependencies.

To follow the path of implementing effective governance and management of ICT and data, the institution must realise that the needs and requirements of ICT are secondary to the needs and requirements of service provision. Social protection institutions are not ICT institutions—technology is there to serve the organisational goals, not the other way round. All trade-offs, choices and considerations must therefore begin with this in mind.

Nowhere this is more important than in the central core of service delivery—the management information system (MIS). Most social protection organisations have gone beyond paper-based processes or are actively trying to implement digital systems to execute their mandates. The result is that all aspects of social protection, including policymaking, oversight, programme management and delivery of benefits and services, are permeated by ICT. In this context, the MIS is usually the structuring core of service delivery that makes policies and programmes tangible. It operates as the interface between business processes, information, beneficiaries, staff, and external organisations.

The MIS is therefore the foundation of effective social protection service delivery and is crucial to ensuring the potential fulfilment of rights. These systems support business processes such as registration of contributors and beneficiaries; contribution collection; collecting declarations and payroll information;

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> *The ILO is committed to supporting the digital transformation of social protection institutions to strengthen their operational capacities.*

Photo: Mira Gratier/DFID. Mobile money transfers for the elderly, Zimbabwe, 2017 <shorturl.at/cGJP6>.

adjudication of eligibility; receiving benefit applications; accounting and finance, including calculating and paying benefits; case management, including appeals and complaints; and the monitoring and evaluation of operational processes.

Most of the important changes and results brought into the institution by ICT will come through acquisition and contracting. This is an important focus area, requiring profound knowledge of the ICT industry and the environment of the country where the institution is located. Training of acquisition and contracting specialists focused on ICT will be necessary to acquire and implement the best and most adequate solutions. In ICT, price is at least as important as efficiency, efficacy, and effectiveness. The institution will have to learn to balance investments between supporting the present and building the future.

This delicate balancing act is also necessary when dealing with proprietary versus open source systems. The issue is complicated by the need to understand and calculate the total cost of ownership. This outlook focuses on the long-term sustainability of the systems involved, where hidden and indirect costs can be attached to necessary complementary products, maintenance, and additional services. Also present are various vendor and technological lock-in strategies that are common in the ICT market. To prepare for this, constant risk assessments must be

carried out for all investment proposals, especially those involving external contracts and outsourcing. Mature OSS solutions, with broad adoption and robust community involvement as described above, result in cost-efficient alternatives to provide social protection services to society. Open source solutions should always be considered during the planning of social protection delivery. However, as all IT solutions, they are profoundly contextual, both concerning the specific solutions as well as the IT environment where it will be used.

The ILO is committed to supporting the digital transformation of social protection institutions to strengthen their operational capacities. This is the path to effective service delivery capacity, which results from harnessing ICT and data; open-source software can clearly play a crucial role. However, it is always necessary to remember that this needs to be combined with comprehensive social protection policies and adequate financing to ensure social protection rights for all. ●

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Public acceptance and understanding
when existing databases are used to target social protection

Rodolfo Beazley[1] and Alexandra Doyle[2]

The process of digitalisation in the delivery of social protection is well under way and has gained momentum since the COVID-19 pandemic. Digital tools have been introduced to facilitate processes at every stage of the delivery chain: from outreach, intake, registration, and enrolment to delivering payments and receiving complaints. While the move towards digitalisation has brought benefits to both governments and citizens, challenges related to digital inclusion and who is left behind by an increasing reliance on digital infrastructure are pertinent considerations in the design of social protection delivery systems.

The degree of inclusion of social protection programmes that rely on digital tools is influenced by several factors. Potential recipients must have access to digital tools (such as access to the Internet and mobile phones) to register for and receive support. This, in turn, must be accompanied by sufficient digital literacy and skills to navigate the system, as well as the motivation to use the technology. Those designing and delivering programmes must ensure that the necessary supportive conditions are in place, including a strong communications component and data security protocols (UNU-EGOV and ISSA 2022).

Digitalising assessment and enrolment
One aspect of digital delivery that has gained traction since the COVID-19 pandemic is the use of existing databases to identify programme recipients. Traditionally, fresh data were collected to assess people's needs or determine their eligibility for social protection programmes. However, the collection of fresh data—through face-to-face interviews and sweep surveys—is expensive and time-consuming and imposes administrative costs on applicants in terms of time spent registering their information.

As government data ecosystems mature, including legislative and regulatory frameworks and the architecture to access and share data, many governments have started realising the value of existing administrative databases. Using national ID systems or other unique identifiers, administrative databases within the social protection sector and from other sectors can be linked to support the identification of programme recipients and verification and validation of their information. Chile's Integrated Social Information System (*Sistema Integrado de Información Social*—SIIS) illustrates the great potential of using administrative data by linking self-reported data with data from more than 40 public sector databases to support the determination of eligibility of individuals and households for 80 public programmes (Grosh et al. 2022). Regarding shock response, the use of existing data also presents an opportunity to rapidly reach large swathes of the population in need of support. Eligibility for Pakistan's *Ehsaas* emergency cash transfer, implemented in response to the COVID-19 lockdown, was determined by comparing self-reported data against several linked administrative databases (e.g., government employment records and tax records) using the country's unique national ID. Within a week of the programme's announcement, over 7 million people were enrolled and shortly afterwards received their first payment (Lone et al. 2021).

Benefits of using existing data
Targeting approaches that use existing data have the potential to be more cost-effective and timelier than alternative approaches (the latter being especially important during times of shock). Applicants to social protection programmes can save time as they are not required to re-supply data that is already held by public agencies (such as demographic data). This does, however, place the responsibility (and burden) on citizens to ensure government-held data is kept up to date (e.g., by registering births or deaths in their families) or to supply additional data that fluctuate over time and which are needed for targeting decisions (e.g., income data). Government administrators can benefit from better data quality and accuracy, as well as from lower costs to obtain them. Data that have already been collected and are held in administrative databases are likely to provide a more objective measure of certain socio-economic characteristics, as data collected specifically for the purposes of targeting of social protection programmes can be biased due to stigma or social desirability, which can reduce their quality (Grosh et al. 2022).

Some of the timeliest responses to the COVID-19 pandemic relied on existing databases to identify recipients. Brazil's emergency social cash transfer (*Auxílio Emergencial*) was able to pay the first recipients within one week and reached around 68 million direct recipients over seven months using the country's Single Registry (*Cadastro Único*). The government verified the eligibility of informal workers who self-registered by cross-checking against other databases related to formal employment, social security and taxes (Beazley, Marzi, and Steller 2021). Even before the pandemic, experimental data from Sindh province in Pakistan found that using data from the social registry to target a shock-responsive programme resulted in a higher level of operational efficiency—reducing the targeting time by more than half—compared to using community-based targeting when the relevant data-sharing processes were in place (IRC 2016).

Necessary conditions
If existing databases are to be used for identification, registration and enrolment, several conditions must be met to achieve inclusive outcomes. As outlined

by Barca and Beazley (2019), data must be complete, relevant, current, accurate, accessible, secure and private. Complete data should cover all households that are eligible for support. For shock response, this implies that the database should cover the entire affected population. Data are considered relevant when they contain the information needed to identify eligible households (i.e., socio-economic characteristics that relate to need or eligibility) and operational data to enable support to be delivered. Data currency refers to data being sufficiently up to date to determine which individuals or households need support at a particular point in time, while accuracy relates to the credibility and trust in the information contained in the databases. As demonstrated by the cases of Chile, Pakistan and Brazil described above, the value of administrative data is enhanced when it is accessible within and between sectors. However, data accessibility must be supported by legislation, policy and frameworks that establish the processes and protocols for sharing data and linking databases, including provisions for data security, protection and privacy. Data must be protected against unauthorised access, misuse or corruption and used in a transparent manner, in line with individuals' privacy preferences.

Risks to public understanding and acceptance

Using data from various sources can jeopardise the public's understanding or acceptance of implemented programmes. When data is retrieved from multiple databases and from different ministries and government levels that has been collected at different points in time, it can lead to a situation in which applicants do not know the reasoning behind eligibility or enrolment decisions. Beyond the eligibility criteria themselves, the data used to assess eligibility can also be a source of misunderstanding.

Relying on multiple databases can lead to a 'black box' situation, whereby the way in which existing data is used is opaque to applicants. During the COVID-19 pandemic, many countries opted to leverage existing databases—as opposed to collecting new data—to adhere to social distancing and mobility restrictions. However, there is mounting evidence that,

Photo: Visual News Associates/World Bank. Young women learn computer skills in Hyderabad, Pakistan, 2012 <https://ibit.ly/c6oY>.

in some cases, this has led to significant problems regarding public acceptance and understanding:

- In Peru, the government created the National Household Registry (*Registro Nacional de Hogares*—RNH) to inform cash responses to the pandemic. The RNH covers almost all Peruvians (nearly 33 million people) and is fed by various databases, including the social registry (*Padrón General de Hogares*—PGH). In addition, a web portal was created for people to apply for assistance and add to the information that was already available, albeit only to a minor extent: as reported by the government, about half of the 3 million household applications made via the web portal were discarded due to errors. Therefore, the RNH contained mostly data collected prior to the crisis. While its creation represented a major innovation, the use of multiple databases—including the seriously outdated PGH—led to targeting inaccuracies and problems with people's knowledge and acceptance of the selection mechanism, as reported by the ombudsman (Lowe, McCord and Beazley 2021; Beazley and Irizarry 2021). A key problem was that only the PGH contained information on household composition, and it was outdated. It was therefore necessary to resort to algorithms that, based on kinship relations, addresses and other information, constructed households in the RNH database. However, there are clear indications that this exercise

was problematic (Lowe, McCord and Beazley 2021).

- In Colombia, to inform the targeting of the Solidarity Income (*Ingreso Solidario*) emergency programme, a Master Database was created, combining all sorts of administrative records, including the System of Possible Beneficiaries of Social Programmes (SISBEN)—the main source of information for social assistance targeting. The Master Database also contained information provided by the private sector. The first lists of recipients selected through the Master Database contained many exclusion and inclusion errors, leading to thousands of complaints and public concerns around data reliability. The use of the Master Database was suspended until the process was refined (Barreneche et al. 2021).[3]

- In Thailand, the lack of information on eligibility criteria, the screening process and the data used to target COVID-19 support led to protests.[4] Approximately 27 million people registered online for cash assistance and only 9 million were determined to be eligible. As in the other country examples, various databases were used to assess eligibility.

- In South Africa, applications for the Social Relief of Distress (SRD) grant were checked for eligibility against several databases, including from the Unemployment Insurance Fund (UIF) and the National Student Financial Aid

Scheme (NSFAS). Many were rejected, as applicants were thought to be currently receiving unemployment benefits from the UIF or financial aid from NSFAS. Unsuccessful applicants were notified via SMS, but the lack of reasons provided for rejection resulted in frustration and confusion, which in turn discouraged many applicants from appealing the decision or re-applying for support (Gronbach, Seeking, and Megannon 2022). However, it was found that nearly one million applications were rejected due to data inaccuracies. The UIF database was found to be seriously outdated, while the NSFAS database contained information on all individuals who had applied for support, regardless of whether they had received any financial aid (Senona et al. 2021).

Despite the merits of these responses regarding the creation of databases and the rapid delivery of large-scale assistance, the obscure use of data affected the credibility of the programmes. In the end, social protection is based on a social contract about how to redistribute resources and, as such, targeting decisions must be transparent to enable accountability and ensure public buy-in.

The way forward
Digitalisation is rapidly advancing and the exchange and use of existing data has the potential to improve the effectiveness of service delivery by minimising data collection efforts and reducing the associated administrative burden on the population, among other benefits. However, the use of existing data requires important investments in terms of quality, interoperability, and privacy/ protection measures.

The use of existing data should not come at the cost of the transparency of the selection process. It is important to ensure that communication and accountability mechanisms are in place and effective. The risk is too high: obscure processes can make programmes less effective because they are not adequately monitored and do not involve citizens as much as they should— they can damage the reputation of the programme and even of entire systems

and can undermine the foundational social contract behind the provision of social protection. ●

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1. Independent consultant.

2. Department of Social Development, Western Cape Government.

3. See: <https://ibit.ly/Z9LR>.

4. See: <https://ibit.ly/pFpD>.

> " The use of existing data should not come at the cost of the transparency of the selection process.

Pre-conditions for equal digital access policies: The role of data practices and social infrastructure

Sarah Giest and Annemarie Samuels[1]

In many parts of the world, public processes, services and communication with governments are increasingly being digitalised and automated. The expectation is to save costs and benefit citizens through service speed and availability. While there are advantages to uninterrupted access to government websites and automatic eligibility checks, the implementation of digital government processes "encounters a range of policy, legal, institutional, technological, and even cultural constraints" (Veiga et al. 2016, 324).

Automation poses a challenge to governments in terms of increased opacity in the data-driven processes that ultimately make decisions about, for example, welfare provisions for citizens. While most governments do not follow fully automated or artificial intelligence-driven decision-making processes, they increasingly lose touch with the data that drive the models that, for example, calculate the risk for someone defrauding the government. These data can have hidden gaps that differ according to how they were collected and analysed, as well as the kinds of questions being asked. In addition, these gaps might contain non-random and systematic omissions, which can lead to data that exclude, under- or over-represent people at the margins— whether due to poverty, geography or lifestyle (Lerman 2013).

While governments use copious amounts of data to streamline social services, it is the people who are at the receiving end of these policies who have the most trouble accessing such services digitally. When vulnerable citizens cannot access government services due to low digital literacy, the gap in representation of marginalised groups in government data may continue or even widen. The pre-conditions for equitable digital access policies in data-driven

governments are therefore situated at both the data management side and the level of social infrastructure supporting marginalised groups.

Data gaps

There are significant gaps in the datasets available to governments, which are not always visible to policymakers. These gaps can be categorised along a matrix of available and unavailable data as well as known and unknown data gaps (Giest and Samuels 2020). When the data are unavailable and this gap is known, governments can decide to collect additional data (primary data gap), while a known data gap with available data (secondary data gap), can pose additional hurdles. These can originate from the required data being proprietary or governments lacking the expertise or resources to use them. Available data may also be of poor quality and not a good 'fix' for the data gap that is being filled. Finally, data gaps might be unknown to government (hidden data gaps). In this context, policymakers might rely on datasets that unintentionally under- or over-represent certain groups, which can potentially lead to wider repercussions for public decision-making.

For example, public benefit programmes, such as child welfare or domestic abuse agendas, continuously gather data on their (largely poor) beneficiaries. This can have implications for citizens further down the line. Governments often require a lot of information from recipients, in combination with social media data. Data collection is carried out on top of cross-referencing databases, following up on tips from welfare fraud hotlines, and drug-testing. Recipients of government support further tend to live in neighbourhoods and/or public housing units that are subjected to more police presence and surveillance. The higher likelihood of being flagged for minor things like jaywalking and

being visible in different government systems can potentially affect credit scores, education and job opportunities (Waddell 2016). The underlying implication is that the efforts and resources put into the 'datafication' of policy can affect the economic opportunities, social mobility and democratic participation of marginalised groups. Lerman (2013) states that, "these technologies may create a new kind of voicelessness, where certain groups' preferences and behaviours receive little or no consideration when powerful actors decide how to distribute goods and services and how to reform public and private institutions" (ibid., 59). Moreover, as the parameters for data gathered through these technologies (e.g., a focus on social benefits) are established by the dominant groups in society, marginalised groups may not only become invisible, but also become visible in distorted ways, leading to misrepresentation. Hence, the 'big data' revolution may create new forms of inequality that are harder to detect and whose impact is more difficult to predict.

These different types of asymmetries regarding how citizens are represented in the data can have effects on decision-making processes because data architectures are set up in a way that potentially reproduces prejudices. A study by UN Women (2015), for example, finds that funding for the implementation of policies related to women in post-conflict contexts remains "inadequate" (see also Criado Perez 2019). This has to do with data not being collected and disaggregated by sex, which results in multiple examples of women's needs not being met.

Public data culture and capacity

These data-driven changes further require public organisations to have a 'data culture' to engage with different types and formats of information. Data culture within public organisations refers to understanding big data not only as an information technology (IT) issue, but as something that requires

support from organisation-wide structures and capabilities (Comuzzi and Patel 2016). Specifically, it emphasises the importance of policymakers understanding how to find, analyse and make use of big data and the institutional structure to support this through, for example, training or sharing of data among government departments.

As the linkages between data collection, use and application in the form of policies and digital services becomes more complex, there is increasingly a focus on understanding these processes in a holistic manner. This means looking at the entire ecosystem of government work—including data, technology, organisational culture and capabilities. This ecosystem contains agency- and individual-level factors. For the latter, it shows that the tasks and decision-making processes of bureaucrats are changing. They are less of an intermediary or translator between citizens and the bureaucratic system and more the 'interfaces' between citizens and the information system, meaning they become administrators focused on digitalised forms with limited access and power over the decision-making process and the information inherent to it. Whereas bureaucrats might have been able to grant an extension on a form or add relevant notes, they now merely help move citizens along the digitalised forms and options with ever decreasing discretionary power to adjust the bureaucratic decisions down to individual cases (Bovens and Zouridis 2002). At the agency level, research reveals that organisations are hardly capable of identifying larger changes once digital systems are being introduced and mostly perform reactively in adjusting organisational practices. Henriksen and Mahnke (2005) argue that decision-makers realise and value, for example, the possibility of greater efficiency gains from technology, but they are also hindered by political and structural factors that are unique to political and administrative contexts, including legal and administrative requirements, the structure of political decision-making, and the balance of centralised and decentralised decision-making in particular.

Working with (big) data in public organisations further requires the capacity to collaborate. This implies establishing linkages with other government departments, organisations, private stakeholders, and citizens to create feedback points as well as (trust) relationships. Given the involvement of different stakeholders in a collective process of using big data technologies, collaboration becomes an inherent part of mitigating uncertainties in the adoption process. Through collaborative approaches, bureaucrats gain information that minimises the perceived unpredictability and lack of control in digital technologies and algorithmic decision-making tools in particular (Zhang and Feeney, 2020).

In addition, public organisations often suffer from 'value incompatibility'. This refers to "situations where the values are competing, i.e., the pursuit of one value will compromise another" (Goh and Arenas 2020, 28). The most common conflict is

Photo: Fiona Graham/WorldRemit. Man at an MTN mobile money kiosk, Uganda, 2016 <shorturl.at/hNS27>.

> " As the linkages between data collection use and application in the form of policies and digital services becomes more complex, there is increasingly a focus on understanding these processes in a holistic manner.

that of cost savings and citizen-centric values. Such unresolved conflicts can lead to a state of paralysis and, ultimately, performance issues in public organisations (Thacher and Rein 2004).

Social infrastructure

The focus on data-driven government processes, in combination with the increased facilitation of digital services during the COVID-19 pandemic, has further limited the ability for citizens to reach governments and choose their preferred communication channels. In fact, recent studies show that this 'digital-by-default' state creates challenges for vulnerable citizens who prefer non-digital ways of communicating with their governments, such as picking up the phone or sending a postcard. Linos et al. (2021) find that although digital communications tend to reduce costs for government, they imposes "sizable psychological burdens on disadvantaged communities that often lack confidence and technical skills to use these technologies for formal, bureaucratic communications" (Ibid, 1). Additionally, the automation of services, scenarios in which decisions are returned to applicants with limited human interference, can lead to additional burdens for those citizens that have atypical situations and for whom the automated allocation of benefits, for example, is not possible. Thus, 'extraordinary' circumstances take longer to process and often require additional paperwork or documentation (Larsson 2021).

This has shed light on the role of social infrastructures that underpin digital provisions. Community spaces, such as libraries or community centres, have seen an upsurge of visitors during the COVID-19 pandemic from citizens requiring support with services. The establishment of a local, social infrastructure that supports citizens in understanding and accessing government services plays a central role but struggles to receive adequate funding in often decentralised structures implementing austerity measures. In addition, the focus of governments on data has led to a focus on policies that leave a digital trace behind, rather than physical interactions at the local level. Bridging critical social infrastructure gaps is an essential tool in policymaking to promote social cohesion and social integration—not **next to**, but **because of** digitalisation of services.

In sum, data-driven ways of working present various challenges to governments, both in terms of internal processes as well as outward-facing, service-oriented processes. While significant attention has been given to new techniques for processing citizens' information, such as prediction models for welfare calculations, the more hidden aspects have much larger effects in the long term. These aspects are related to the databases that governments build these models on and, at times, the unfamiliarity with the data that is available, how it was collected and is configured in pre-existing systems. Further, there are hidden data gaps or asymmetries that are hard to detect but which can indirectly affect decision-making on social issues, because they over- or under-represent societal developments, such as welfare fraud detection or singling out specific cases.

In addition, the ambition of data-driven processes is not always met with organisational and individual capabilities and willingness to translate this into effective and efficient policymaking. Here, a holistic perspective is needed to not only assess the data or technical systems, but the organisational structure and individual capabilities to integrate new workflows into day-to-day information processing.

Finally, the focus on data goes hand-in-hand with digital interfaces, where information is entered directly into a system. This has larger implications for the provision of public services. Not only does it emphasise those being able to access digital services, but it also focuses on digital data. Citizens need help not only in accessing and making use of the specific digital services available, but also support in navigating public bureaucracy more generally. The social—largely offline—infrastructure that contributes to citizens accessing the (digital) realm of government, however, is often overlooked as a critical factor in the improvement of citizens' digital skills, thereby increasing accessibility. When working towards equal digital access, governments would therefore do well to both build public service capacity for dealing with (big) data and their gaps and strengthen the social infrastructure to support vulnerable citizens in accessing digital government services. ●

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Digital social currencies and local social protection in the Brazilian cities of Maricá and Niterói

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The government of the Brazilian city of Maricá, in the state of Rio de Janeiro, was a pioneer in implementing a digital social currency on a large scale—the *mumbuca*, for use exclusively in the city. It was instituted in 2013 and reached its mature, current state by the end of 2019. Two years later and inspired by its neighbour, the city of Niterói introduced its own municipal digital social currency, the *arariboia*.

Managed by the *Instituto E-Dinheiro Brasil* (IEDB), a Brazilian 'fintech' (financial technology), both currencies are fully digital, functioning through a card with near-field communication technology via a prepaid arrangement on mobile phones. The operation is under the responsibility of community banks— *Banco Mumbuca* in Maricá and *Banco Arariboia* in Niterói. The first bank is managed by civil society and the second by the IEDB. Magnetic cards are distributed to beneficiaries and local businesses must register to be able to receive these digital currencies.

An app is available through the IEDB platform and is freely available to both beneficiaries and businesses in Android and iOS app stores. The operation is similar to that of credit and debit card machines. A single establishment can have several accounts, called Points of Sale, which are linked to a main account and are dedicated to receiving payments.

The digital infrastructure includes: i) paying benefits of social programmes; ii) providing and monitoring the digital financial system (through an app and internet banking services); iii) registering and monitoring businesses and service providers that accept the social currency; and iv) managing the community bank (in Niterói). Ferreira and Melo (2022) state that social currencies are no longer "treated as

a craft mechanism of solidarity finance" but instead are "an advanced technology managed by a fintech company".

The *mumbuca* digital currency in Maricá

Maricá's Citizens' Basic Income programme is the largest municipal basic income policy in Latin America. It reached its current, mature form in late 2019, paying a monthly benefit to 42,000 citizens (25 per cent of the population). Eligibility requirements include: being enrolled in Brazil's Single Registry of Social Programmes (CadÚnico)[4] and having lived in the city for at least three years. Payment is made using the *mumbuca* digital currency, which is worth BRL1.

Unlike conventional cash transfers, Maricá's programme is unconditional, beneficiaries may receive it even if they have other sources of income; and it is provided on an individual (rather than household) basis. As of September 2022, its value is 200 *mumbucas* per person. A family of six, for example, would receive BRL1,200 BRL a month, almost the national minimum wage (BRL1,212).

The introduction of *mumbuca* in 2013 innovated in three aspects: i) it adopted a digital format from the outset—initially through a debit card, and from 2015 onwards also via the IEDB app. This choice was based on operational advantages and security, sparing the *Banco Mumbuca* from dealing with paper money; ii) the benefit cannot be converted into BRL by beneficiaries, and must be spent in the city, on a network comprising over 12,000 businesses; iii) this network includes informal businesses (e.g., street vendors) along with formal ones.

Banco Mumbuca manages the currency and pays beneficiaries out of transfers received from the city government. It charges a 2 per cent fee on each commercial transaction. Business owners can convert *mumbucas* into BRL, paying a 1 per cent fee. This revenue ensures the functioning of the bank and funds nine different lines

of microcredit, covering from productive activities to home renovations.

At the beginning of the COVID-19 pandemic in March 2020, the social protection infrastructure played a decisive role in enabling the city government to act swiftly. In a few days, the Basic Income benefit rose from 130 to 300 *mumbucas* and could be paid in the following month.

The city government also introduced other programmes, the largest of which was the Workers' Support Programme (Programa de Amparo ao Trabalhador), which benefits around 20,000 micro-entrepreneurs and self-employed workers whose monthly income does not exceed five minimum wages. The benefit amount was 1,045 *mumbucas* (equal to one minimum wage in 2020) until August 2021, and then it was reduced to 600 at least until December 2022.

In April 2022, Maricá was hit by heavy rains. The cash transfer, supported by the digital currency infrastructure, was crucial in allowing the city government to offer three ad hoc benefits: Social Rent, Restart Aid and *Mumbuca* Support.

Maricá's digital infrastructure, which comprises the digital social currency, the bank and microcredit, has proven effective for social protection. Each *mumbuca* generates a multiplier effect of 1.79 on economic transactions in the city, and microcredit had a countercyclical impact during the pandemic (Gama, Maldonado, and Freitas 2021). This set of anti-crisis measures contributed to positive job creation results throughout 2020, at least in the short term (Waltenberg et al. 2021).

Beneficiaries of the Basic Income programme can quickly be targeted by new schemes whenever necessary. For those that are not covered, emergency programmes are an alternative. However, it is not ideal to create policies in emergency situations, potentially requiring specific

documentation, means tests, or other criteria for eligibility. Maricá's social protection network could be more effective if it were more comprehensive, with a registry of the city's close to 170,000 inhabitants.

The *arariboia* digital currency in Niterói

Launched in January 2022 by the city government of Niterói, the *Moeda Social Aeribóia* programme is a permanent local cash transfer. It is part of an intricate set of solidarity economy activities, aimed at tackling poverty and the socioeconomic development of the municipality.

Eligibility requires being enrolled in CadÚnico and being considered 'poor' based on the federal government's poverty lines. The inclusion of new beneficiaries is conditional on the federal government's CadÚnico update routines, though frequency is unclear.

Unlike *mumbuca*, the *arariboia* is paid per household. The minimum monthly benefit is 250 *arariboias* (250BRL) paid to the head of the household, plus 90 *arariboias* per additional member, up to six household members. The maximum benefit paid to a single household is 700 *arariboias*—58 per cent of the minimum wage in 2022. Currently, the benefit is paid to 31,000 households (Prefeitura de Niterói 2022)—representing 6.1 per cent of the population of Niterói—[5]and is accepted in around 4,000 businesses.

The social currency digitalisation chain includes: i) registering beneficiaries; ii) registering businesses and service providers, which also involves a face-to-face step; iii) paying benefits provided by the city government; iv) offering a method for local businesses to receive payments; v) fostering the circulation of the currency in the city. In order to increase programme buy-in, the IEDB app can also be used to pay utility bills.

As in Maricá, the IEDB charges a 1 per cent fee for conversion of *arariboia* to BRL, on top of the 2 per cent fee on all sales made with the digital social currency. Microcredit lines associated with *arariboia* are scheduled to be launched in 2022.

The digitalisation of *arariboia* has allowed for some flexibility in its use. Once the benefit card is activated, purchases can be made with or without the card. In the

Photo: Maricá City Hall. Mumbuca Digital Currency card <*shorturl.at/tuHT1*>.

first case, purchases are made by typing the password of the IEDB account, just like a conventional debit or credit card. Purchases may also be made through an official identification number and related password, or through instant electronic payment through mobile apps.

An additional guiding principle is the gradual incorporation of other public policies offered by the city government into the digital currency environment. This would expand participation to more diverse demographic groups, and increase the efficiency of government interventions, avoiding programme fragmentation and redundancy. These measures could further foster the use of *arariboia* and promote its legitimacy as Niterói's de facto digital currency.

The merits of local digital social currencies as a social protection instrument

The experiences of Maricá and Niterói in the use of digital social currencies as an instrument of social protection are significant innovations for several reasons.

First, there are operational advantages compared to other cash transfer mechanisms. They are simpler, more practical, less costly and safer than paper money, giving beneficiaries the choice of using them through cards, mobile apps or through an ID number and password. These last two methods even preclude the distribution of plastic cards, thus reducing their cost and the environmental footprint of the entire initiative.

Second, digital currencies are highly flexible. In Maricá, although the digital social currency technology was originally intended exclusively for beneficiaries of a regular programme, it was quickly adapted serve as the payment method for emergency benefits in the most critical moments of the COVID-19 pandemic and beyond. It is an important mechanism for managing social risks.

Niterói suffered due to not having this social technology available when the pandemic hit. Though it had resources available and was willing to assist the population, the city government faced difficulties in implementing a cash transfer programme. The process was made much harder during the pandemic, including registering beneficiaries and businesses and organising public tenders for companies to provide debit cards

Another aspect of the flexibility of digital currencies is the integration between different government agencies, as exemplified by the various programmes implemented in Maricá since the onset of the pandemic. In addition, a series of ongoing studies by the government of Niterói might lead *arariboia* to be accepted as a payment method in the municipal public transportation system, and also in programmes such as School Savings, which offers students annual payments in cash.

The School Savings programme illustrates a third merit of the technology. It has not been easy to make payments via the traditional banking system.

There are obstacles posed by conventional banks (public and private), including unwillingness to provide services to the unbanked population, the lack of adequate documentation, costs involved in obtaining documents, and a misunderstanding of procedures. Simplicity is more than merely an operational advantage of the digital currency technology. It allows to include the most vulnerable populations into the banking system. Granting a benefit through a digital currency can be a gateway for these populations to access other banking services, such as loans, microcredit, savings accounts and investment alternatives.

Fourth, one of the greatest advantages of local digital currencies is boosting the local economy. It is difficult to isolate a causal effect of a given policy on an observed outcome. In Niterói and Maricá even more so, due to the simultaneous introduction of a series of innovative policies, leading to good economic results compared to other municipalities. This can be partly explained by the increased circulation of *mumbuca* starting in 2020, the expanded coverage and increased benefit values of the Basic Income programme, and the introduction of various emergency programmes. This reinvigoration of the local economy could occur through conventional, non-digital, forms of cash transfer, but some of the benefits could be spent outside the municipality.

One last advantage of this social technology is that digital transactions are an ideal format for storing data, in contrast to transactions made in paper money.

In theory, it is possible to record in detail every transaction or financial flow by all the actors involved: from credits in the benefit account to purchases made in local businesses, business-to-business purchases, payment of utility bills, microcredit grants, etc. If governments, community banks and the companies managing the digital currencies properly record these data and provide them to researchers—respecting, of course, the confidentiality of citizens and companies involved—the academic community could benefit greatly. This could allow for the production of various studies on the impacts of these local digital, providing useful knowledge for Maricá, Niterói and other municipalities .

Caveats

An important caveat is that Maricá and Niterói are not typical municipalities. Immense oil reserves located on the Brazilian coast near them, and formulas for sharing royalties and special participations defined by federal government agencies made them rich overnight. It is not possible to simply transplant the policies of these municipalities to other national or international locations, at least in terms of the breadth of funds, although they can, in any case, serve as an inspiration for similar policies.

One point of attention is the lack of familiarity of residents of all ages and social strata with the daily use of digital currency. Maricá and Niterói mitigate this difficulty by enabling the use of the currency through several platforms, such as a mobile apps, physical card, or an ID number with a password. However,

preliminary results from a survey involving focal groups with beneficiaries in Niterói indicate that the lack of digital literacy is one of the programme's main challenges.

Finally, as mentioned by Bateman and Teixeira (2022), it is always a good idea to be careful not to overestimate the importance of the tools used in the implementation of a social policies. While digital currencies appear to be a promising tool, good policy design goes far beyond them. ●

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Photo: Jeremy Reding. Niterói view, Brazil <shorturl.at/DHJU6>.

Unlocking the power of digital
data to improve social assistance

Priya Vora and Kay McGowan[1]

Extreme poverty is on the rise worldwide for the first time in 20 years, erasing decades of hard-fought gains in social and economic development. Food insecurity is alarmingly high, with over 800 million people expected to be at risk of famine, malnutrition, and food scarcity (FAO 2022). The human toll is expected to worsen as the long tail of the pandemic, increasingly severe and frequent climate events, and the war in Ukraine continue to drive inflation and raise the cost of basic necessities such as food and fuel.

Governments and multilateral organisations around the globe have responded by ramping up major social assistance and social protection programmes. In response to the COVID-19 pandemic, the International Labour Organization (ILO 2021) documented some 1,600 new social protection initiatives launched between February and December 2020 alone. Cash and voucher assistance to households went from USD2.8 billion in 2016 to USD6.3 billion in 2020, constituting one-fifth of all international humanitarian assistance over the same time period (Lakner et al. 2021).

Social assistance is needed now, more than ever
These cash-based social assistance programmes are life-saving interventions, as they put money directly in the hands of people who need it the most. When done well, direct income support to households not only enables people to quickly access food and other essential items they need most immediately, but also to benefit from a reliable income stream, which supports financial inclusion and shows longer term—albeit modest—gains in well-being (Baird, McIntosh, and Özler 2019).

While on the rise, too often these cash delivery schemes are plagued with implementation challenges that drive up administration costs and enable fraud throughout the delivery mechanisms. The McKinsey Global Institute has estimated that one-third of cash-based assistance is historically lost to leakage (Manyika et al. 2016), a staggering waste of much-needed public resources. Importantly, vulnerability to pilferage exists across the entire value chain, from means testing to identifying eligible recipients, all the way to the final disbursement of cash.

Digital infrastructure is key to effective social assistance at scale
Social assistance schemes that leverage digital payments and digital identity systems can deliver benefits more quickly and efficiently, and can open the door to long-term financial inclusion and resilience benefits at scale. Moreover, digital communications—whether through interactive voice response systems and/or messaging systems—can accelerate enrolment and provide recipients with the means to redress errors.

- In India, government-to-person (G2P) payments increased significantly during the COVID-19 pandemic and benefitted from the Aadhaar-enabled Payment System"(AePS) to deliver direct payments.

- In Togo, rapid innovation led to the rollout of the NOVISSI programme in just two weeks, which launched a frictionless, nationwide digital payment platform, enabling the disbursement of over USD34 million in cash over two phases.

- Digital identity systems have helped improve and expand the targeting of social assistance and provide continuity of service, though there is still much work to be done. In addition to the popular example of India, some evidence from the World Bank (Rutkowski et al. 2020) has shown some countries, including Chile, Thailand, and Peru, have benefitted from digital ID systems to provide assistance in general, and in particular during their COVID-19 response.

- In the United States, pilot efforts to test the use of SMS reminder services yielded increases in benefit renewals of supplemental nutrition assistance programmes (SNAP) and Medicaid by 10 and19 per cent, respectively, demonstrating that direct digital nudges can ease enrolment for qualified recipients.

Nevertheless, realising the benefits of delivering direct aid digitally is easier said than done. End-to-end digital cash delivery requires an entire ecosystem of improved regulation; cross-organisational reforms; user centric design of applications and communications; interoperable payments and identity platforms operating at scale; acceptance networks and agents for translating digital value into purchasing power; and so much more. And even if this ideal digital ecosystem were to exist, there would certainly still be opportunities for fraud. Therefore, the goal must not be to expect a digital 'silver bullet', but rather focus on significant improvements in terms of efficiency and efficacy of digital cash/information delivery.

Data as a new form of economic opportunity
Investments in digital infrastructure like those detailed above are essential to scaling up efficient and effective social protection schemes. Yet, as digital access expands, another opportunity is created: the ability to give individuals control over their digital data.

Delivering income support digitally means that the recipients of social protection benefits are generating data about their income and expenditure flows—the beginnings of a 'personal data endowment' that can be beneficial in the long run. It can also include stock data such as health records, school records, and other credentials.

A growing movement is calling for technology systems and policies that equip people with their digital footprints and digital credentials. Some are calling for personal data portability to stem the monopolistic trends of companies aggregating massive pools of personal data. Others are calling for personal data portability as a way to build trust and reduce the risk of misuse or exploitation. But another reason is worth examining: giving
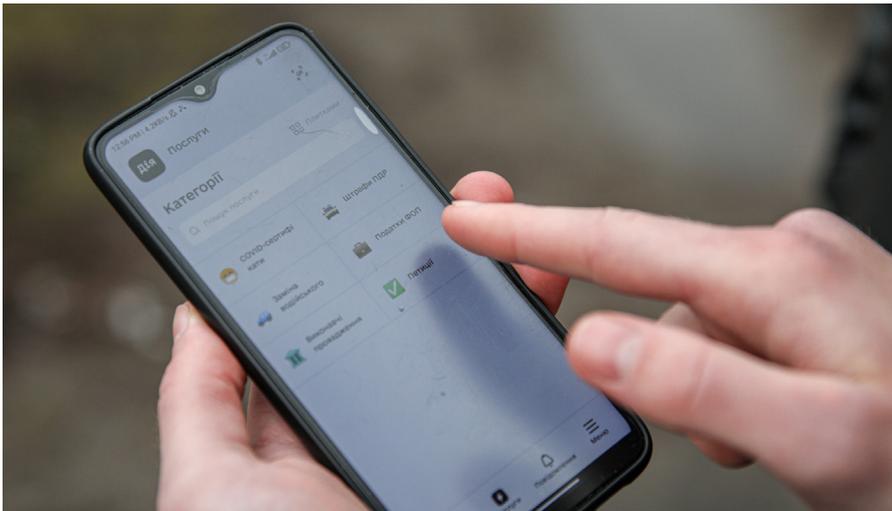
Photo: Operation of the Diia app, a government platform for digital identification, Ukraine, 2021 <*shorturl.at/nzBQ8*>.

people control over their data endowment offers a host of possibilities to rebound from economic shocks. In other words, personal data portability may enable people to recover more quickly by virtue of having their identity, skills and degrees, credit scores and records, health data, and other data more easily accessible and digitally verifiable.

While still a nascent concept, several efforts are under way to provide people greater control over their data, specifically for economic and social resilience. Some examples include:

- **Diia:** The Government of Ukraine launched a citizens' portal to provide Ukrainians access to over 50 government services through the online Diia app. Millions of people can use the app to access their driver's licence and other proof of identity and credentials. Since the onset of the war with Russia, many of these people have been displaced outside of Ukraine but can have their credentials recognised in Poland and elsewhere.

- **The Commons Project:** The Commons Project is a global network seeking to help promote open data standards and build technology platforms and services that empower individuals with their health data. If successful, people will be able to travel worldwide with a health passport to show immunisation and vaccine records, and ultimately their full medical history, to allow them to access better, more informed care when they need it.

- **Data Empowerment and Protection Architecture (DEPA):** The Government of India has developed new digital architecture to facilitate the free flow of data across government agencies, and promote competition and innovation. This solution is now fully operational in the banking sector and allows individuals full control over their financial history to prove creditworthiness with prospective lenders. India is unique in that it not only has a technical architecture for safe sharing of data but, importantly, there are a new set of regulated entities which serve as fiduciary agents to ensure that personal data is shared according to their owners' their personal privacy preferences.

- **Digi.me:** The private sector is also coming forward with solutions, such as Digi.me. The Digi.me company and its app are at the forefront of creating user-centric architecture that enables users to aggregate and take control over their data from social media, health devices and other digital solutions. By allowing people to aggregate their personal data from different apps and devices, new analytics capabilities can help support the identification of health risks and/or the achievement of health goals.

These efforts are designed to reduce the friction for people to receive access to credit, healthcare and other basic services. Another unstated benefit is that equipping people with more agency over their personal data can be uniquely empowering, particularly

for traditionally disadvantaged groups, and can begin to recalibrate the fundamental power imbalance in digitalisation as we currently know it: that the benefits of data accrue to large tech firms and governments, and not to the people.

While providing people access to their data is not a solution to immediate needs for food and shelter, governments and donors can begin to invest in the technological tools that allow people control over their personal data endowments as a strategy to foster resilience and empowerment. ●

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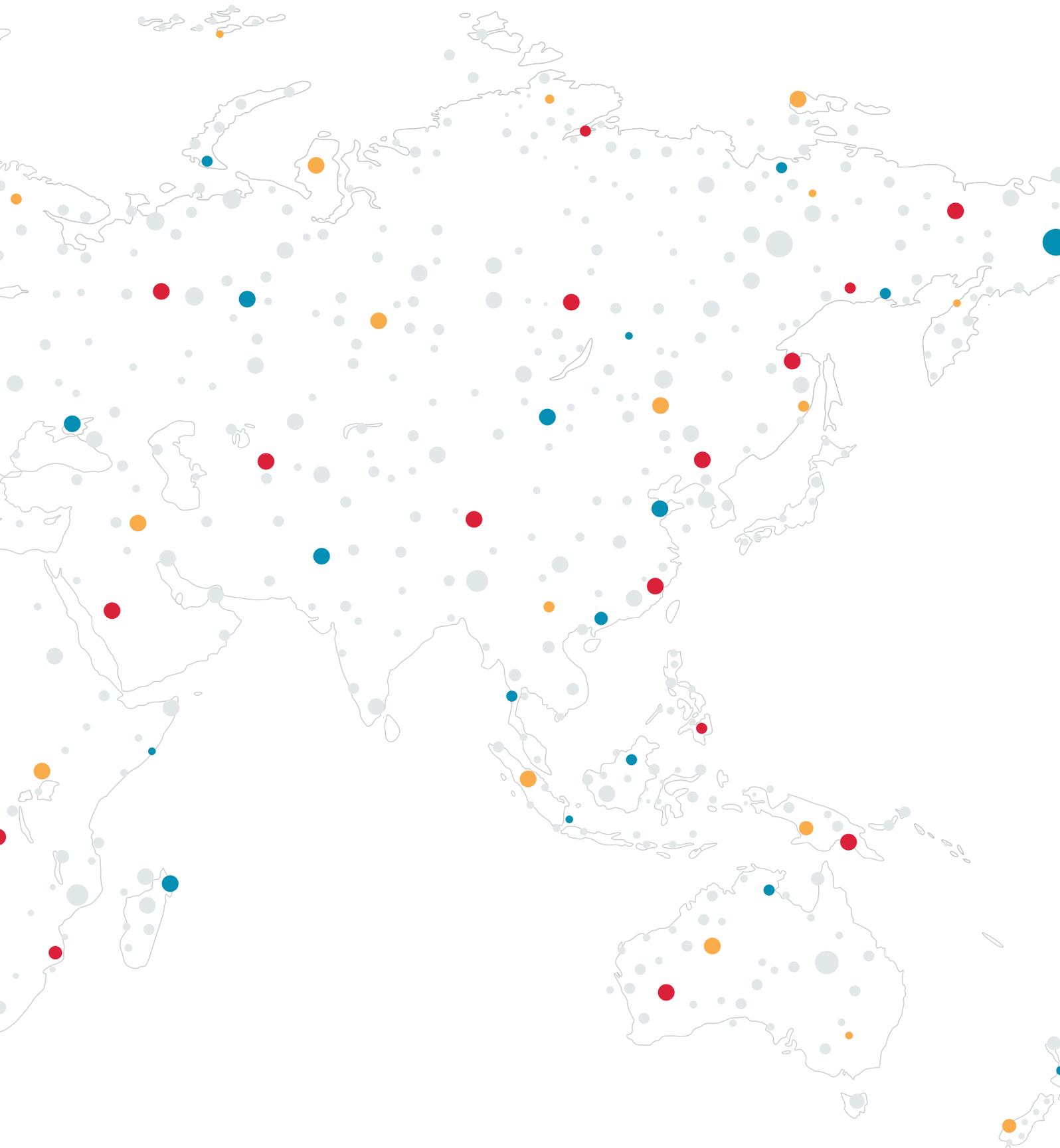
Technology cannot replace political decision-making or change "
the political culture.

Veronika Wodsak, Anita Mittal and Melis Guven

When vulnerable citizens cannot access government services due to low digital "
literacy, the gap in representation of marginalised groups in government data
may continue or even widen.

Sarah Giest and Annemarie Samuels

The process of digitalisation in the delivery of social protection is well under "
way and has gained momentum since the COVID-19 pandemic.

Rodolfo Beazley and Alexandra Doyle

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