



Photo: ©2010 CIAT/Neil Palmer <shorturl.at/6SXX>

Digital innovations in delivering social protection in rural areas: Lessons for public provisioning during the post-pandemic recovery and beyond

Beatriz Burattini, Gabriela Perin, Krista Alvarenga and Varsha Valiyaparambil,
International Policy Centre for Inclusive Growth (IPC-IG)



Food and Agriculture
Organization of the
United Nations



ipea Institute for Applied
Economic Research

Research Report No. 85

Digital innovations in delivering social protection in rural areas: Lessons for public provisioning during the post-pandemic recovery and beyond

By Beatriz Burattini, Gabriela Perin, Krista Alvarenga and Varsha Valiyaparambil

© FAO and IPC-IG/UNDP, 2022

Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-ncsa/3.0/igo/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons license. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original English edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

Research coordinators

Alejandro Grinspun (FAO)
Fábio Veras (IPEA/IPC-IG)

Research team

Beatriz Burattini (IPC-IG)
Gabriela Perin (IPC-IG)
Krista Alvarenga (IPC-IG)
Isabela Franciscón (IPC-IG)
João Pedro Dytz (IPC-IG)
Maya Hammad (IPC-IG)
Nourjelha Mohamed (IPC-IG)
Mariana Balboni (socialprotection.org)

Interns

Varsha Lakshmi Valiyaparambil, Paulo Eduardo da Rocha
Maia Fernandes, Mengisto Akowuah and Linus Piesch (IPC-IG)

United Nations Volunteers

Ahmed Bukli, Bachoke Joan, Conchita Misquith, Deo Nshimirimana,
Dina Allam Abdelazeem Hamad, Evelyn Yumha, Florencia Gavagna,
Giorgia Rosso, Gustavo Do Couto Ramos Pereira, Inji Anhour,
Marc Ntanko Sadjo, Maria Teresa Amato, Mehdi Haji Hosseini,
Muhammad Ahmad, Ora Prelvukaj, Rana Ryan, Rim Tekaya,
Rita R. Sakari, Savita Kulkarni and Yakubu Sini Wule

Designed by the IPC-IG Publications team

Roberto Astorino, Flávia Amaral, Priscilla Minari
and Manoel Salles

The IPC-IG disseminates the findings of its work in progress to encourage the exchange of ideas about development issues.

The papers are signed by the authors and should be cited accordingly. This publication is available online at www.ipcig.org and www.fao.org/publications.

For further information on IPC-IG publications, please feel free to contact publications@ipcig.org. FAO information products are available on the FAO website (<http://www.fao.org/publications>) and can be purchased through publications-sales@fao.org.

The IPC-IG is a partnership between the United Nations and the Government of Brazil to promote learning on social policies. It is linked to the United Nations Development Programme (UNDP) in Brazil, the Ministry of Economy (ME) and the Institute for Applied Economic Research (Ipea) of the Government of Brazil.

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO), or of the International Poverty Centre for Inclusive Growth/United Nations Development Programme (IPC-IG/UNDP) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO, or IPC-IG/UNDP in preference to others of a similar nature that are not mentioned. The findings, interpretations, views and conclusions expressed in this information product are those of the author(s) and do not necessarily reflect those of FAO, the IPC-IG/UNDP or the government of Brazil.

All requests for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

Suggested citation: Burattini, B., G. Perin, K. Alvarenga, and V. L. Valiyaparambil. 2022. "Digital innovations in delivering social protection in rural areas: Lessons for public provisioning during the post-pandemic recovery and beyond". *Research Report*, No. 85. Rome and Brasília: Food and Agricultural Organization of the United Nations and International Policy Centre for Inclusive Growth.

ISSN: 2526-0499



**Food and Agriculture
Organization of the
United Nations**



ipea Institute for Applied
Economic Research

**DIGITAL INNOVATIONS IN DELIVERING
SOCIAL PROTECTION IN RURAL AREAS:
LESSONS FOR PUBLIC PROVISIONING DURING
THE POST-PANDEMIC RECOVERY AND BEYOND**

Acknowledgments

This report was commissioned by the Food and Agriculture Organization of the United Nations (FAO) as part of a UN to UN Transfer Agreement with the United Nations Development Programme (UNDP) as administrator of the International Policy Centre for Inclusive Growth (IPC-IG). Funding for the study came from the FAO Regular Programme.

FAO wishes to thank the IPC-IG research team, led by Beatriz Burattini and comprising Gabriela Perin, Krista Alvarenga and Varsha Valiyaparambil. Isabela Franciscan, Paulo Eduardo da Rocha Maia Fernandes, Mengisto Akowuah and Linus Piesch of IPC-IG supported the research for this study, as did the following United Nations Volunteers: Ahmed Bukli, Bachoke Joan, Conchita Misquith, Deo Nshimirimana, Dina Allam Abdelazeem Hamad, Evelyn Yumha, Florencia Gavagna, Giorgia Rosso, Gustavo Do Couto Ramos Pereira, Inji Anhour, ILakshmi Valiyaparambil Marc Ntanko Sadjo, Maria Teresa Amato, Mehdi Haji Hosseini, Muhammad Ahmad, Ora Prelvukaj, Rana Ryan, Rim Tekaya, Rita R. Sakari, Savita Kulkarni and Yakubu Sini Wule. IPC-IG researchers João Pedro Dytz, Maya Hammad and Nourjelha Mohamed conducted and analysed the key informant interviews held in Arabic and French, while Mariana Balboni assisted during the interview on Togo's Novissi programme. Fábio Veras of IPEA and the IPC-IG was responsible for leading the internal peer review process within the IPC-IG. The design and layout of this report was led by Roberto Astorino and his team, comprising Flávia Amaral, Priscilla Minari and Manoel Salles.

The project was conceptualised and led by Alejandro Grinspun from the Social Protection Team at FAO Rome, who also coordinated the peer review process and contributed to the drafting of the report. The peer review process was conducted in an iterative manner and involved, at various stages, Omar Benammour, Niclas Beni, Garima Bhalla, Greta Campora, Gala Dahlet, Mari Kangasniemi, Marco Knowles, Ettore Lancellotti, Claudia Patrone, Rodrigo Rivera and Qiushi Yue from FAO Rome, in addition to Peter Rukundo (FAO Uganda), Erna Ribar (UNICEF Cambodia), Anita Mittal and Kelvin Hui (GiZ), Anders Gerdin, Britta Olofsson and Golala Ruhani (SIDA), and Valentina Barca (independent consultant).

Country focal points from FAO Argentina, Cambodia, Jordan, Morocco, the Philippines, Togo, Türkiye and Uganda supported the arrangement of the key informant interviews for the country case studies, as did staff from UNICEF Cambodia and Morocco, and from WFP Jordan. Fulvio Cenci (FAO Rome) gave operational guidance and support throughout the project.

FAO and the IPC-IG team thank the key informants interviewed from Argentina's Directorate of Registries and Formalisation, Cambodia's General Secretariat for the National Social Protection Council, Jordan's National Aid Fund, Morocco's former Tayssir Directorate, the Philippines' 4Ps-NPMO, Togo's Ministry of Digital Economy and Digital Transformation, Türkiye's Ministry of Family and Social Policy and Digital Transformation Coordination Department, and Uganda's Ministry of Gender, Labour and Social Development, who have provided crucial information for this study. FAO and the IPC-IG team also acknowledge the staff from the Philippines' Finance and Management Service, Policy Development and Planning Bureau, National Household Targeting Office and *Pantawid Pamilyang Pilipino Program* for reviewing the Social Amelioration Programme case study.

Acronyms and Abbreviations

4Ps	<i>Pantawid Pamilyang Pilipino Program</i>
4Ps-NPMO	4Ps National Program Management Office
AI	Artificial intelligence
ABB	Al Barid Bank
ATM	Automatic teller machine
CDR	Call detail records
COVID-19 CT	COVID-19 Cash Transfer
DNI	National identity document
DSWD	Department of Social Welfare and Development
GRM	Grievance redressal mechanism
ICT	Information and communication technology
ID	Identification
ISAS	Integrated Social Assistance Service Information System
LGU	Local government unit
MIS	Management information system
MS	<i>Monotributo Social (Social Monotax)</i>
MSA	<i>Monotributo Social Agropecuario (Social Monotax for Family Farmers)</i>
NAF	Family farming unit
NAF	National Aid Fund
NIRA	National Identification and Registration Authority
NSR	National Single Registry
NUR	National Unified Registry

OD-ID-Poor	On-demand ID-Poor
PPIS	<i>Pantawid Pamilya</i> Information System
ReNAF	<i>Registro Nacional de Agricultura Familiar</i> (National Family Farming Registry)
SAC	Social Amelioration Card
SAP	Social Amelioration Programme
SASF	Social Assistance and Solidarity Foundation
Takaful	<i>Takmeely</i> Support Programme
Takaful 2	Daily Wage Worker Assistance Programme
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USSD	Unstructured Supplementary Service Data

CONTENTS

Acknowledgments	IV
Acronyms and Abbreviations	V
Executive Summary	XI
I. Setting the Scene	XI
Benefits and drawbacks of digitalisation for rural social protection	XI
II. Case Studies	XI
Digital innovations at the system level	XII
Digital innovations at the programme level	XII
III. Looking Forward	XIII
Implications for policy	XIII
I. Setting the Scene	1
Introduction	1
Benefits and drawbacks of digitalisation for rural social protection along the delivery chain	2
Outreach and registration	5
Beneficiary enrolment	6
Benefit delivery	7
Grievance and redressal	8
Cross-cutting issues	9

CONTENTS

II. Case Studies 11

Digital innovations along the rural social protection delivery chain: International experiences before and since the COVID-19 pandemic 11

Digital innovations at the system level 11

Beneficiary outreach, registration and enrolment: Argentina's National Family Farming Registry 11

Beneficiary outreach, registration and enrolment: Türkiye's e-Devlet platform and Integrated Social Assistance Service Information System 17

Beneficiary enrolment: Uganda's National Single Registry 24

Benefit delivery: Morocco's Al Barid Bank and mobile payments 28

Digital innovations at the programme level 31

Beneficiary outreach, registration and benefit delivery: Jordan's Daily Wage Worker Assistance Programme (*Takaful 2*) 31

Beneficiary outreach, registration and benefit delivery: The Philippines' Social Amelioration Programme 35

Beneficiary enrolment and benefit delivery: Cambodia's COVID-19 Cash Transfer Programme 41

Beneficiary enrolment and benefit delivery: Togo's *Novissi* programme 45

III. Looking Forward 52

Conclusions and policy implications 52

Contributions of digitalisation to social protection performance in rural areas 52

Implications for policy 56

References 59

Annex — Methodology 72

LIST OF BOXES

Box 1. Assessment parameters	18
Box 2. Data protection when sharing ReNAF data	29
Box 3. Cybersecurity in Türkiye	37
Box 4. 4Ps' eligibility assessment process	53

LIST OF FIGURES

Figure 1. Argentina: Internet users by age group (%), 2017	26
Figure 2. Türkiye: Proportions of individuals (16–74 years old) using the internet by age group and sex (%), 2021	31
Figure 3. Türkiye: Proportions of individuals (16–74 years old) using computers by age group and sex (%), 2018	32
Figure 4. Türkiye: Proportion of individuals (16–74 years old) using the internet and computers by employment status (%), 2018 and 2021	32
Figure 5. Türkiye: Proportions of men and women (16–74 years old) interacting with public authorities via e-government (%), 2004–2021	33
Figure 6. Türkiye: Proportions of individuals (16–74 years old) using e-government services by activity (%), 2004–2021	36
Figure 7. Uganda: Proportion of individuals using the internet (%), 2010–2020	38
Figure 8. Morocco: Telephone subscriptions per 100 inhabitants, 2010–2020	42
Figure 9. Philippines: Individuals using the internet (%), 2010–2020	50
Figure 10. Philippines: Households with a computer at home (%), 2010–2019	50
Figure 11. Philippines: Telephone subscriptions per 100 inhabitants, 2010–2020	50
Figure 12. Cambodia: Households with internet access at home by urban/rural area (%), 2015–2017	55
Figure 13. Cambodia: Internet users by age group (%), 2016	56
Figure 14. Cambodia: Households with a computer at home (%), 2011–2017	56
Figure 15. Cambodia: Telephone subscriptions per 100 inhabitants, 2010–2020	56
Figure 16. Cambodia: Access to electricity by urban/rural population (%), 2010–2020	56
Figure 17. Togo: Internet penetration and internet broadband penetration rates (%), 2010–2021	60
Figure 18. Togo: Fixed and mobile internet penetration rate (%), 2010–2021	60
Figure 19. Togo: Households with a computer at home (%), 2011–2017	61
Figure 20. Togo: Telephone subscriptions per 100 inhabitants (%), 2010–2020	61

LIST OF TABLES

Table 1. Argentina: National Family Farming Registry (ReNAF)	27
Table 2. Türkiye: e-Devlet digital platform and Integrated Social Assistance Service (ISAS) information system	34
Table 3. Uganda: National Single Registry (NSR)	39
Table 4. Morocco: Al Barid Bank and mobile payments	43
Table 5. Jordan: <i>Takaful 2</i>	47
Table 6. The Philippines' Social Amelioration Programme (SAP)	51
Table 7. Cambodia: COVID-19 Cash Transfer Programme	57
Table 8. Togo: Novissi programme	62
Table 9. Expected benefits and potential challenges and risks of digitalisation for rural social protection performance	67

COUNTRY SNAPSHOTS

Argentina's National Family Farming Registry	30
Türkiye's e-Devlet digital platform and Integrated Social Assistance Service information system	37
Uganda's National Single Registry	41
Morocco's Al Barid Bank and mobile payments	45
Jordan's <i>Takaful 2</i>	49
The Philippines' Social Amelioration Programme	54
Cambodia's COVID-19 Cash Transfer programme	59
Togo's <i>Novissi</i> programme	65

Executive Summary

Over the past 20 years, considerable progress has been made in reducing poverty worldwide, with the expansion of social protection coverage and uptake playing a key role. To strengthen and expand the public provision of social protection, which is a fundamental human right, countries have been investing in the development of robust delivery systems. These investments have included the deployment of digital tools, especially identification and payment systems and social registries, with a view to extending coverage and disbursing benefits more effectively.

This publication discusses the potential of digital technology to improve social protection performance in rural areas, as well as its limitations. Through case studies from across all regions, the paper documents the extent to which digitalisation can improve the delivery and uptake of social protection among rural populations. It also discusses the challenges, risks and trade-offs of digitalising social protection in terms of its impact on the efficiency, effectiveness, responsiveness and inclusiveness when catering to rural areas.

I. Setting the Scene

Part I of the report presents the concepts and a set of parameters to assess the potential benefits and risks of digitalisation from the perspective of social protection policy. These are **efficiency** and **effectiveness**, **responsiveness** and **inclusiveness**. The potential and limitations of digital technology for improving rural social protection are examined at key steps in the **social protection delivery chain**—specifically, outreach and registration, enrolment, delivery, and grievance and redressal. The case studies in Part II analyse a range of digital solutions pertaining to one or another of the aforementioned steps in the delivery of social protection.

Benefits and drawbacks of digitalisation for rural social protection

The adoption of digital tools for social protection can bring benefits to both public administration and beneficiaries. For the former, digitalising social protection lowers administrative costs, improves data accuracy, quality and transparency, enables faster delivery of services, and facilitates monitoring. For the latter, digitalisation can promote awareness of social protection schemes and access to several benefits and services without having to apply for each one separately. Digitalisation can also reduce travel time and transportation costs when applying for programmes and collecting benefits, while facilitating access to information about programmes.

At the same time, the considerable barriers that limit access to and use of digital technology in rural areas can undermine the benefits of digitalised social protection or exacerbate existing gaps in access to social benefits. In fact, lower access and use of digital technologies among rural populations often undermined the effectiveness and inclusiveness of social protection responses to the COVID-19 pandemic in rural areas around the globe. The right to social protection must not be undermined by the introduction of digital tools. Every effort should be made to serve the most marginalised populations, including by providing both digital and non-digital solutions.

II. Case Studies

To examine the contributions that digital tools and innovations can make to improving social protection delivery in rural areas, the report presents eight case studies from across all regions. Each of these cases serves to illustrate novel digital solutions that countries have deployed at either the system or the programme level.

System-level innovations refer to cases where countries have made use of digital tools to improve rural social protection delivery across a variety of programmes; in other words, digitalisation can be considered to have

strengthened the social protection system as a whole, not just an individual programme. In turn, **programme innovations** focus on digital tools and solutions applied to individual social protection schemes, rather than serving multiple schemes simultaneously.

Digital innovations at the system level

Created in 2007, **Argentina's** National Family Farming Registry (ReNAF) gathers and provides data on family farmers that are used for social protection and rural development programmes. The ReNAF relies on a mix of digital and analogue tools for data collection, and its data are automatically cross-checked with social protection registries and other government databases (for example, to verify eligibility for the Social Monotax scheme). Despite its many achievements, the ReNAF case suggests that harnessing digital tools to extend social protection coverage requires a conducive policy environment, without which progress in extending social and economic rights to rural people can be easily undone.

Türkiye's Integrated Social Assistance Service Information System and e-Devlet digital platform are an example of how digital tools can be deployed in ways that improve beneficiary outreach, registration and enrolment. Not only have they contributed to enhancing the efficiency of social protection by saving transportation costs for applicants, they are being deployed in a way that protects the privacy of rural applicants, while also making big data available for decision-making.

Uganda's National Single Registry, launched in 2021, acts as both a social registry and an integrated beneficiary registry. The NSR has become central to beneficiary enrolment. It supports data verification and increases the frequency with which data can be updated. Because the registry faces challenges in identifying people who lack identification documents or a physical address, Ugandan authorities have also been working with offline digital tools, village representatives and personal visits to reach rural populations who might otherwise be excluded from social protection schemes.

Morocco's Al Barid Bank and mobile payments have both contributed to social protection delivery in rural areas. While Al Barid Bank has wide coverage in rural Morocco, mobile payments are being piloted by the flagship *Tayssir* cash transfer programme to better reach beneficiaries in remote areas. Notably, the pilot of this payment method focused not just on delivery but also on ensuring that a wider digital ecosystem is in place for beneficiaries to use their mobile money.

Digital innovations at the programme level

During the COVID-19 pandemic, **Jordan's** *Takaful 2* programme provided emergency assistance through a variety of digital tools. Pre-pandemic tools such as the *Takaful* database, the National Unified Registry and registration through virtual forms sped up the identification of households deemed eligible for emergency relief. Beneficiaries also avoided transportation costs thanks to the payment of benefits via e-wallets and could file complaints through a range of methods, such as the *Takaful* website and the National Aid Fund's call centre hotline.

The Philippines' Social Amelioration Programme also relied on digital tools for outreach, registration and delivery during the pandemic. Social media platforms facilitated outreach to the population, and those interested could apply via the ReliefAgad mobile app. Beneficiaries could self-register through this app, and their data, as well as those of the Social Amelioration Cards, enabled automatic payment. The data contained in the *Pantawid Pamilya* Information System also accelerated the identification of beneficiaries, although the lack of up-to-date data is reported to have led to exclusion errors.

Cambodia's emergency COVID-19 Cash Transfer programme built on multiple digital tools along the social protection delivery chain, such as the ID-Poor and On-Demand-ID-Poor databases that allowed for the rapid identification of beneficiaries. The programme also relied on rural community structures and the use of offline digital tools to circumvent barriers to social protection uptake among rural populations.

Finally, the *Novissi* cash transfer programme in **Togo** made notable use of a host of digital innovations such as 2G phones, machine learning, satellite imaging and artificial intelligence (AI). In the absence of a national social or beneficiary registry, the country relied on voter identification (ID) to identify poor people and transfer cash to their mobile money accounts. The fact that applicants could share mobile phones was one way in which the government tried to ensure the inclusion of those without their own phone in the programme. This was aided by the Togolese government's decision to pass regulations to increase 2G coverage in the country. However, people without voter ID, living outside the targeted cantons or not in line with the assumptions embedded in the AI algorithm may have been excluded from the programme.

III. Looking Forward

Recent experience shows that using digital solutions along the social protection delivery chain can yield a range of benefits. At the same time, the use of digital technologies for implementing social protection programmes faces several challenges in rural areas. The main risk lies in the potential exclusion of individuals or households deprived of access to the required digital technologies or even to basic infrastructure and hardware—or lacking the knowledge on how to use them. This may especially affect women, elderly people, migrants, ethnic minorities and indigenous peoples.

Other obstacles and risks worth considering in connection with digital social protection include data privacy concerns, the lack of physical addresses or personal identification, and the lack of digital ecosystems that accept digital payments. While these obstacles are not unique to rural areas, they tend to manifest themselves more acutely among rural populations than elsewhere.

Implications for policy

The evidence presented in this paper points to a set of recommendations geared towards enhancing the benefits while reducing the barriers to and risks associated with the adoption of digital solutions along the social protection delivery chain. These are:

- Rural populations must be made aware of the social protection programmes for which they are eligible, through a variety of active outreach and awareness-raising activities tailored to their level of access to social and digital services.
- On-demand registration must complement enrolment through existing registries or databases.
- Qualified programme staff must be available to support or take over registration with applicants' informed consent to overcome any potential limitations in rural dwellers' ability to use digital registration methods.
- Reducing the risk of excluding applicants during enrolment requires up-to-date social or integrated beneficiary registries, databases and management information systems, as well as unique national identification systems.
- As long as large swaths of the rural population lack ID, registration and enrolment mechanisms for social protection programmes must support efforts for ID provision or waive ID requirements entirely.
- Benefit delivery mechanisms must be designed to cater to marginalised groups' vulnerabilities, including by ensuring that adequate digital and financial ecosystems are in place.
- Beneficiaries' privacy, as well as transparency of information about programmes, must be guaranteed during grievance redressal.

Along the entire delivery chain and even beyond the social protection sector, the following actions are recommended:

- Community members must be adequately trained and have the resources to perform designated tasks, as support from rural actors improves programme implementation along the entire social protection delivery chain.
- Combining (offline and online) digital and analogue tools is key to enhancing inclusiveness and responsiveness, as well as a rights-based approach. This includes letting beneficiaries choose which tools they want to use, and to borrow essential hardware or have a third person help them navigate the necessary processes, in a way that prevents abuse or exclusion.
- Basic and digital infrastructure must be expanded, as well as ID coverage and education, to improve basic and digital literacy.

Policymakers will do well to consider digitalisation not as a silver bullet but as a useful means to an end. With the necessary safeguards in place, there is little doubt that digital tools can help improve social protection performance and should, therefore, be part of a country's social protection delivery toolkit. The challenge consists of finding ways to maximise the opportunities and benefits that digitalisation has to offer, while averting and minimising its risks.

I. Setting the Scene

Introduction

Over the past 20 years, considerable progress has been made in reducing poverty worldwide. Despite this progress, about three quarters of the global population are still classified as being moderately poor. Around 80 per cent of the world's extremely poor people live in rural areas, and an estimated one in five rural dwellers live in extreme poverty (Castañeda et al. 2018; UNDESA 2021a). This is underpinned by several aspects that contribute to rural dwellers' vulnerability. About four in five rural workers are in informal employment, meaning that they work under precarious conditions. Access to social protection is essential for those living in rural areas to escape unstable and vulnerable employment and thus overcome poverty and exclusion (UNDESA 2021a).

Global social protection coverage remains far from universal, however. The International Labour Organization (ILO 2021) reports that less than half (47 per cent) of the world's population is covered by at least one social protection programme. Social protection coverage is lowest in Africa (17 per cent), but it also falls short in the Arab countries (40 per cent) and in Asia and the Pacific (44 per cent). Even when social protection schemes are available, a host of legal, financial, administrative and programme design barriers typically restrict people's access to social protection in rural areas (UNDESA 2021a; ILO and FAO 2021).

To strengthen and expand public provision of social protection, governments around the world have been investing in the development of robust delivery systems (World Bank 2022a). These investments have included the deployment of digital tools, especially identification and payment systems and social registries, with a view to expanding social protection coverage and disbursing social benefits more effectively (UNDESA 2021b).

The adoption of digital tools for social protection can potentially bring benefits to both public administrations and beneficiaries. For the former, digitalisation of the social protection delivery chain lowers administrative costs, improves data accuracy, quality and transparency by reducing duplications and errors, and facilitates monitoring. This enhances both the efficiency and the effectiveness of programme delivery. Digitalisation may also facilitate coordination of social protection interventions, including in times of shocks, by enabling rapid identification of target populations and profiling of their needs and characteristics, which then facilitates coordinated, integrated and institutionalised case management (Ohlenburg 2022; Lindert et al. 2020; Sharpe and Barca 2021).

For social protection beneficiaries, digitalisation of the social protection delivery chain can promote awareness of social protection schemes and access to several benefits and services without having to apply for each one separately. Digitalisation also reduces travel time and transportation costs when applying for programmes and collecting benefits, while facilitating access to information about programmes (Ohlenburg 2022; Lindert et al. 2020). For women, digital social protection has the potential to improve their control over the benefits received when they are prioritised as the main recipients. Digitalising social protection can also help reduce women's exposure to harassment and violence while travelling long distances to register and collect benefits (Botea et al. 2021; Wajcman, Young, and Fitzmaurice 2020; O'Donnell, Buvinic, and Bourgault 2022).

The implementation of data management and social registries has been facilitated by the spread of digital technologies (Ohlenburg 2022). The trend towards increasing digitalisation was accelerated by the outbreak of COVID-19, which led governments to adopt extraordinary containment measures, including restrictions on people's movement and the provision of financial support to families and individuals affected by these restrictions. This sharply accelerated the adoption of digital tools along the social protection delivery chain, with the aim of reducing interpersonal contact and easing application, enrolment and payment processes of social protection schemes, which needed to expand at an unprecedented rate in response to the pandemic-induced crisis (FAO 2020).

Despite this expansion, large segments of the world's population are still excluded from the digital revolution. There are currently 3.9 billion people online worldwide, but only 45 per cent of people living in low- and middle-income countries use the internet on average. The bulk of the remaining 55 per cent most likely reside in rural areas. Among the primary obstacles to the adoption and use of digital technologies in rural areas are the lack of electricity, low literacy rates, gender disparities, widespread poverty and language barriers, along with limited local content and insufficient network coverage¹ (Henry 2019).

Additionally, people living in rural and remote areas lack access to infrastructure such as power grids, and typically have low incomes, which translates into low rates of internet usage (Hadi 2018). Due to the high costs of technology, low levels of digital literacy, weak regulatory frameworks and limited access to infrastructure and services, the expansion of digital technologies during and since the pandemic may even be reinforcing the digital exclusion of rural populations, especially in low- and middle-income countries (Trendov, Varas, and Zeng 2019).

Decision-makers in the social protection and rural development sectors may, therefore, find themselves at a crossroads between reaping the benefits that digital innovations have to offer for improved service delivery and the multitude of challenges and risks they pose to people living in rural areas. Put simply, while digital tools can be a means to improve the performance of rural social protection, their incorporation into delivery systems could likewise cause considerable harm if not planned and implemented adequately and with a human rights-based approach.

Against this background, this publication discusses the potential of digital technology to improve social protection performance and coverage in rural areas, as well as its limitations. Through experiences and case studies from across all regions, the paper documents the extent to which digitalisation can improve the delivery and uptake of social protection for rural populations. In doing so, it highlights advantages, challenges, risks and trade-offs in terms of increasing the efficiency, effectiveness, responsiveness and inclusiveness of social protection in rural areas.

The next section explains the key concepts used in this report, and the policy parameters that will be used to gauge the performance, benefits and risks of digitalising social protection along key steps in its delivery chain. The section draws on a thorough review of the recent literature on digitalisation in the social protection sector. Section 3 examines eight case studies in depth to analyse the digitalisation of rural social protection delivery. The case studies are drawn from across all regions, focusing on digital innovations that have been or are being implemented in Argentina, Cambodia, Jordan, Morocco, the Philippines, Togo, Türkiye and Uganda. Section 4 then concludes with a summary of the key findings and a set of policy recommendations. The methodology employed for this report can be found in the Annex.

Benefits and drawbacks of digitalisation for rural social protection along the delivery chain

This section reviews the literature discussing the prospects, achievements, shortcomings and risks of digitalising social protection delivery and uptake in terms of its performance in reaching rural populations and covering them effectively against idiosyncratic and/or covariate shocks. After briefly explaining the concepts used in this report, the following subsections discuss the potential benefits, challenges and risks of digitalising key stages along the social protection delivery chain. The section concludes by highlighting some cross-cutting issues of digitalisation of social protection in rural areas.

1. For instance, women are 50 per cent less likely than men to be online; most online content is only in a handful of languages; use of digital tools is hampered by a lack of locally appealing apps; and, as of 2016, 3G networks only covered 29 per cent of the population living in rural areas around the world (Henry 2019).

Concepts

Digitalisation does not have a clear-cut definition, as it is sometimes used interchangeably with digitisation and digital transformation. This report follows what seems to be the most consensual way to differentiate between them. **Digitisation** implies turning analogue information into digital data (by scanning a paper and saving it as a PDF, for example). **Digitalisation** goes beyond digitisation, as it encompasses the use of digital technologies to modify a process. Finally, **digital transformation** presumes that, following from digitalised processes, an entire system or organisational culture is changed, including the way decisions are made (Gupta 2020; Bloomberg 2018; Bumann and Peter 2019). As this report does not look at systemic change, it will refer only to the digitalisation of rural social protection, focusing on specific processes that relate to the social protection delivery chain.

Digital technologies are understood as information and communication technologies (ICTs)—or, in other words, tools and services using a range of hardware and software that facilitate, create, store, process, transmit and display information electronically (Tulinayo, Ssentume, and Najjuma 2018). These include electronic devices such as laptops, phones and computers, as well as artificial intelligence (AI) (Prause, Hackfort, and Lindgren 2021; Vasilescu et al. 2020; Røpke, Haunstrup Christensen, and Ole Jensen 2010; Oliveira Neto and Pinheiro 2013).

There is little doubt that there has been a substantial increase in access to digital technologies and the use of ICTs around the world in the last two decades. The number of internet users increased by around 4.9 billion between 1994 and 2021 (ITU 2022a). Yet, despite this increase, in 2021 there were still 2.9 billion people without access, 96 percent of whom live in low- and middle-income countries (ITU 2021b).

In 2021, 76 per cent of the population in urban areas used the internet, compared to 39 per cent in rural areas (ITU 2022a). This urban–rural gap is larger in low- and middle-income countries; in Africa, for instance, internet use was nearly 3.5 times as high in urban areas as in rural areas (ibid.). This gap coincides with the social protection coverage gap in rural areas, especially in countries with low coverage.

There is also a gendered digital divide: only 57 per cent of women use the internet, compared to 62 per cent of men (ITU 2022a). Worldwide, roughly 327 million fewer women than men have a smartphone and can access mobile internet (Wajcman, Young, and Fitzmaurice 2020). Moreover, one in three individuals who could access the internet (since they are within the range of a network) choose not to, due to a slow, unreliable and/or costly connection, a lack of a device and/or not having the necessary skills to go online (ITU 2022a).

Regarding the ownership of mobile phones, their cost is often prohibitive: the International Telecommunication Union (ITU) estimates that the average household monthly income in a high-income country and in a low-income economy can afford, respectively, 27 and 1.5 of the most basic smartphones. These data are concerning, since there is a strong correlation between internet use and mobile phone ownership, and mobile phones are often people's only means of accessing the internet (ITU 2022a; 2022b).

The considerable barriers that limit access to and use of digital technology can undermine the benefits of digitalised social protection in rural areas or exacerbate existing gaps in access to social protection. In fact, lower access to and use of digital technologies among rural populations was a major constraint to the effectiveness and inclusiveness of some of the social protection responses to the COVID-19 pandemic in rural areas around the globe. Provided certain conditions are met, digitalisation of social services and programmes can nonetheless be an enabler to expanding social protection coverage for rural populations (Burattini et al. 2022; ITU 2022a; Benni 2021).

Given that digitalisation is not an end in itself, this report presents three parameters to assess the potential benefits and risks of digitalisation from the perspective of public policy. These are: **efficiency and effectiveness**, **responsiveness** and **inclusiveness** (Box 1). These are by no means the only parameters that could be used to assess the contributions

of digitalisation to rural social protection.² Nonetheless, the three parameters selected in this report lend themselves well to analysing the evidence presented in Section 3, drawing from case studies from around the world. The first criterion addresses the achievement of a programme's objectives and results at minimum cost, while the second focuses on the extent to which social protection schemes reach all those whom the schemes in question are meant to cover, including vulnerable and marginalised groups. Finally, the third parameter speaks to a programme's ability to adequately respond to the specific characteristics, preferences and needs of its target population.

Box 1. Assessment parameters

Efficiency and effectiveness: This entails the assessment of the efforts necessary for programmes/interventions to achieve their desired outcomes. These parameters denote the extent to which an intervention/programme achieves the desired impacts and whether the process for doing so occurs as smoothly as possible. Enquiries made to assess this parameter need to consider causal pathways along the implementation process and may include assessing whether a programme maximises its outcomes at a minimum or fixed cost. In this report, this also entails an assessment of impacts.

Inclusiveness: This involves an assessment of whether a programme or scheme succeeds in reaching all the persons or households who are meant to be covered, including those who are vulnerable and those who have specific access barriers.

Responsiveness: This parameter considers the extent to which social protection strategies, policies and programmes are sensitive to the characteristics and preferences of people in need, specifically whether programmes and interventions consider and cater to people's changing needs along the life cycle (e.g. unemployment, maternity, old age) or during large crises (pandemics, conflicts). This entails not just recognising individuals' and/or households' needs and reacting to them, but also doing so in a timely and effective manner.

Source: Authors' elaboration based on Chirchir and Barca (2020); Lindert et al. (2020); OECD (2019a).

The implementation of social protection programmes takes place through steps along what is described as the 'delivery chain'. These steps are common among social protection programmes, yet their sequencing and salience may vary according to the scheme (Lindert et al. 2020). For this report, we break down the social protection delivery chain into four steps: outreach and registration, enrolment, delivery, and grievance and redressal.

The four steps of the delivery chain presented in this report are relatively wide and contain other processes. The purpose is to represent the key stages in the delivery of social protection, to structure the analysis of the digital innovations in the country case studies presented in Section 3. The definitions are based on, and in line with, the framework presented by Lindert et al. (2020).

The **outreach and registration** process involves two phases: (i) outreach for the dissemination of programme information to the general public and potential beneficiaries; and (ii) intake and registration mechanisms that collect information and documentation for registering applicants whose eligibility will be considered. During **enrolment**, the implementing actor must process the information provided by or about applicants. This includes the identification of

2. Chirchir and Barca [2020] use inclusion, efficiency/effectiveness, accuracy/integrity and accountability/empowerment. The parameters of efficiency and effectiveness employed here incorporate the delivery functions of beneficiary identification, verification and validation, as well as questions relating to fraud, as they can affect programme costs and the attainment of programme goals. Data accuracy is relevant for both inclusiveness and responsiveness, given its centrality for reaching beneficiaries and understanding their needs. The notions of transparency, oversight, knowledge and feedback in Chirchir and Barca's [2020] conceptualisation of accountability and empowerment can be incorporated into the parameters used here. Knowledge and feedback are critical for understanding beneficiaries' needs [responsiveness]. Transparency and oversight are key to ensuring that processes run smoothly to attain desirable outcomes, and are, therefore, relevant for efficiency and effectiveness [OECD 2019a; Lindert et al. 2020].

applicants, targeting and the evaluation of eligibility criteria, which culminates in the selection of beneficiaries.

Benefit delivery refers to the payment mechanisms or other forms of service delivery that make the benefit available to its beneficiaries. Lastly, **grievance and redressal** include the ability of applicants and beneficiaries to submit complaints and obtain redress for wrong or unfair administrative decisions. This is premised on there being clarity on the part of the programme managers and implementers in communicating important decisions such as rejection or removal from a programme (Lindert et al. 2020; Ohlenburg 2022).

Outreach and registration

The first stage of the social protection delivery chain is the outreach and registration process, which includes two steps. The first one is **outreach** and involves disseminating key programme information to beneficiaries, potential recipients, partner stakeholders and the general public to ensure there is sufficient knowledge about the programme, what it offers, who qualifies, and how to apply. Given the need for detailed socio-economic information about the target population, policymakers use **intake and registration** mechanisms to capture information on applicants, register individuals or households into databases, and acquire documentation needed to determine programme eligibility (Lindert et al. 2020; Ohlenburg 2022).

To reach out to the target population of a programme, governments can use either on-demand or administrator-driven approaches, or a combination of the two. In both cases, active digital outreach mechanisms can disseminate information about a programme and its eligibility criteria via mobile phones (SMS, WhatsApp), social media and internet platforms to increase its visibility and raise awareness among potential beneficiaries. This may lead to a larger number of individuals applying to the programme if they deem themselves eligible.

A demand-driven process is initiated by the individual and tends to be more open to inclusion, as individuals apply or update their information whenever they think they are eligible for the programme. If used well, digital tools such as messaging apps may encourage and make it easier for participants to disseminate programme-related content. This can increase the range of outreach and prevent potential beneficiaries from missing the opportunity to apply for a programme because they were not aware they were eligible or lacked details about the application process (Miranda, Heisecke, and Royg 2021).

In turn, a supply- or administrator-driven process is more static and initiated by administrators, with large groups of people registered at a specific time in certain priority geographical locations, following a calendar divided into groups or in response to a specific situation, such as a natural disaster or a pandemic (Lindert et al. 2020). Given the complementarities of the two approaches, they can be integrated to better meet the specific needs of each situation.

Nevertheless, the use of digital technologies to register applicants remotely can be key for potential beneficiaries to overcome barriers such as long distances and transportation costs to reach registration sites, which impact rural applicants in particular. For implementing actors, digital technologies make it possible to reduce expenditures on staff, fuel and vehicles that would accrue during face-to-face visits to potential beneficiaries, although in-person interactions remain important to avoid excluding those lacking in digital means or literacy (Benni 2021; Burattini et al. 2022).

Digital social or beneficiary registries are key tools that can facilitate the registration for social protection programmes. Both are information systems. **Social registries** contain information on applicants and support intake, registration and assessment of needs and conditions for determining eligibility, while **beneficiary registries** include information about the beneficiaries of a social protection programme. Registries that contain information on beneficiaries of multiple programmes are known as **integrated beneficiary registries** (Leite et al. 2017; Lindert et al. 2020). Because a social or beneficiary registry gathers information at the household level, digitising the process of collecting and managing data can help them address the challenge of regularly updating the data and rectifying or correcting information that will be used to design and implement social protection programmes (Berner and Van Hemelryck 2021).

Digitised data can be shared more easily across institutions involved in the implementation of programmes. With integrated social and beneficiary registries, by being inserted into the system once, the person's individual or household data stays in the database shared by several programmes and institutions. This can also facilitate the enrolment process and enhance coordination and effectiveness between services (Chirchir and Barca 2020).

Social protection systems can benefit from integrated and computerised **management information systems (MISs)** that ensure the accurate and timely management of high volumes of data, often across multiple sites and levels of programme implementation. These are integrated user-machine systems that provide information to support operations, management and decision-making functions in an organisation. An MIS may use computerised and manual procedures, models for analysis, planning, control and decision-making, and a database. An advanced and effective MIS can help to reduce fraud, error and corruption by warning end users when data discrepancies or violations of use happen, ensuring data protection and increasing effectiveness (FAO 1997; World Bank 2022a). While some functions of an MIS may be done manually, the use of digital technologies can be central to its function by enabling, for example, automatic computations of payment amounts, among others (Chirchir and Barca 2020).

Despite the abovementioned benefits, digital technologies may also carry considerable risks for outreach and registration. Rural populations with low levels of digital literacy may lack the ability to handle technology and digital devices to register for social protection programmes, which can limit their access to support (Lee et al. 2021; Hadi 2018; Bill and Melinda Gates Foundation 2021). Not only do these barriers affect people's access to programmes, they also impact their ability to receive real-time updates and information regarding the progress of social protection measures (Miranda, Heisecke, and Royg 2021).

There are also risks linked to low mobile phone coverage and low digital literacy among potential beneficiaries, particularly women, which can undermine the effectiveness of outreach strategies based only on digital tools. Quotas on women's participation are frequently used alongside outreach to ensure that they are adequately reached (Botea et al. 2021). In addition, the content of outreach messages must be tailored to target populations to avoid misunderstandings about procedures. This entails the use of simple language and translation into other languages spoken by potential beneficiaries (De Arruda et al. 2021).

Beneficiary enrolment

The second phase of the delivery chain is beneficiary enrolment. Lindert et al. (2020, 12) argue that it differs from registration because "all applicants register, but only beneficiaries enrol in a programme". The enrolment phase involves four steps. First, implementing actors assess applicants' needs and living conditions using the data collected during the registration process to determine their eligibility. Thus, those considered eligible become beneficiaries, while those who are not may enter a waiting list. The next steps include the process of determining benefits and service packages received by the selected beneficiaries. They then receive confirmation that they were selected as beneficiaries and information about how the programme works (notification and onboarding, respectively) (Ohlenburg 2020; Lindert et al. 2020).

Digital social or beneficiary registries facilitate enrolment in a specific programme because they reduce the number of times a person needs to provide documentation to be considered for programme eligibility (Chirchir and Barca 2020). Especially when registries are integrated with other social information systems, their data can help identify social protection coverage gaps. For rural areas, this could mean identifying informal workers, indigenous peoples and other vulnerable groups typically excluded from social protection (Berner and Van Hemelryck 2021).

Digitalisation of data analysis, especially via the **automation of data processing** through AI, has the potential to make social protection more efficient and responsive, as it can facilitate the evaluation of unstructured data for eligibility (re)assessment and speed up this process using computerised operations. Once set up, an AI system also

has the flexibility to be adjusted and increased in scale by expanding programmes and ICT infrastructure with relative ease. AI and automation, however, can lead to discrimination against minorities due to systematic biases incorporated into their algorithms and models. They also demand costs frequently elevated for implementation, including mechanisms to ensure transparency and interpretability of data, which requires an investment for adequate digital infrastructure (United Nations 2019; Ohlenburg 2022; Ludeña 2021).

Digital tools such as messaging apps and email may facilitate beneficiary eligibility verification. They may allow remote rural populations to send digitised documents to the social protection programme administration, saving travel time and costs for individuals (Londoño-Vélez and Querubin 2020; ESCWA 2021; Cruz, Viegas, and Sambuichi 2021). Considering the constraints imposed by the digital divide, it is important to complement digital measures with non-digital ones, particularly by working with rural organisations, including farmers' associations, indigenous groups or women's groups, among others (Burattini et al. 2022; Sato et al. 2022).

The enrolment process in social protection programmes deals with a huge amount of personal data from individuals, such as name, identification (ID) number and address. The use of robust digital technologies to ensure **data privacy and security** is important, as data can be hacked or misused by authorities, especially in times of crisis when the urgency to innovate digitally may trump the usual concerns over caution and scrutiny (Lowe 2022). If potential beneficiaries become suspicious about the use of their data, they may refuse to send personal information and documents necessary for their enrolment; they may also omit and/or provide wrong information in registration processes based on digital tools, thereby compromising the quality of the eligibility assessment for enrolment in a programme (Rolon et al. 2022; Sato et al. 2022; Lee et al. 2021; World Bank Group 2022).

Benefit delivery

Benefit delivery includes **benefit payment mechanisms** or other forms of service delivery. Using ICTs in payment mechanisms and distribution channels may increase social protection performance by decreasing the amount of time it takes to transfer payments to beneficiaries after enrolment (World Bank 2019). By comparing 85 cash transfer responses to the COVID-19 crisis in 53 countries, Beazley, Marzi and Steller (2021) demonstrated that responses which used only electronic payment mechanisms disbursed benefits more quickly. On average, responses that only used electronic payment mechanisms took 51 days to issue the first payment after the stay-home order, while interventions that used only manual payment mechanisms or that mixed both approaches took 86 days.

Digitalised benefit delivery can also reduce administrative and transactional costs while enhancing control of transactions, thereby allowing for more efficient onboarding of beneficiaries and delivery of benefits (CNAAS 2021). For beneficiaries, receiving digital payments saves them time and money, as they do not need to go to a bank branch to collect their benefit. This matters for rural populations, especially if they need to travel to an urban area or another municipality, which is very common for residents of rural areas (World Bank 2019).

Digital payments can also reinforce security through the reduction of street robbery and assault risks associated with individuals carrying cash (World Bank 2019); in some cases, there is even the possibility of receiving multiple benefits into the same bank account. This reduces costs for beneficiaries, who are spared the need and inconvenience of having to open new accounts (Baur-Yazbeck, Chen, and Roest 2019).

The widespread use of digital payments through mobile accounts was one of the innovative measures of social protection responses to the COVID-19 pandemic and related containment measures. Such innovation can promote the financial inclusion of vulnerable people who would not normally have access to the financial system (World Bank 2019). Kenya's Hunger Safety Net Programme, an unconditional cash transfer that supports nomadic communities vulnerable to drought, changed its benefit delivery process by allowing beneficiaries to open full bank accounts, not just a mobile wallet, and

offering them a choice of four financial services providers. They can receive payments and withdraw cash at bank branches and biometrically enabled agents of the bank of their choice. This feature has enabled beneficiaries to have more choice regarding when and where to collect their payments, as well as the desired amount (McKay et al. 2020).

For women, digital payments have the potential to promote their **financial inclusion**, enhance their autonomy to manage resources, and build social capital, provided that programmes are designed in a gender-sensitive manner. The decision to select women as main recipients of social protection benefits, especially cash transfers, may give them bargaining power to use the resources and make important household decisions, thereby shifting intra-household dynamics. Increased access to their own resources reduces women's dependence and the constant need to ask for money for household or personal expenses, which can lead to conflict, particularly if household resources are scarce (Botea et al. 2021).

If programme design is not gender-sensitive, it can increase gender gaps and exclude women who are less likely to have access to ID and have lower levels of mobile phone ownership, lower rates of digital and financial literacy, and limited access to mobile or bank accounts (Bill and Melinda Gates Foundation 2021; Markhof 2020; Hammad 2022). In Cameroon, for example, the COVID-19 response payments initially targeted the women in households, but their lack of ID and mobile phones led to their substitution as the designated recipient (Lowe 2022).

Although digital payment modalities may be preferred by some beneficiaries, including women, they might be **inaccessible** to others due to the presence of persistent barriers to access to and use of digital tools, especially in rural areas (Jenik, Kerse, and Koker 2020). In fact, the adoption of digital payments as the only form of payment can further exacerbate existing inequalities, whether they are based on residence, gender, age or some other characteristic. Alongside being able to access benefits digitally, it is equally important for beneficiaries to be able to cash out easily. This implies increasing the number of automatic teller machines (ATMs), commercial bank branches and agents per capita, and the acceptance of digital payments by local merchants and cash-out services regularly used by rural populations (World Bank 2022e).

Furthermore, the rapidly growing use of digital benefit delivery mechanisms combined with the lack of pre-established digital infrastructure underpinning them in a short time frame may lead to the exclusion of people living in regions with limited internet access. For instance, Colombia introduced mobile money as a new payment technology to deliver payments to poor households under the *Familias en Acción* conditional cash transfer programme just a week after the government had declared a national quarantine to contain the spread of coronavirus. Several beneficiaries struggled to use the *Daviplata* app, the mobile money service from the bank responsible for delivering the transfer. This particularly affected those in remote areas with a weak or unstable mobile phone signal and those located in areas without a signal. This example shows the risks that quickly digitalising government-to-person payments can bring to vulnerable populations, if appropriate mitigation measures are not taken (Londoño-Vélez and Querubin 2020).

Grievance and redressal

Grievance and redressal mechanisms (GRMs) include registering, sorting, assessing and addressing complaints, appeals and queries from programme beneficiaries and other stakeholders (Lindert et al. 2020).

Using digital ways to file a complaint, such as hotlines or online platforms, can provide faster feedback to programme staff, along with adequate infrastructure to quickly process complaints (Aadil and Jain 2020). Online platforms can allow beneficiaries to report changes in their conditions or to submit complaints and grievances in cases of unjustified exclusion or any misconduct by programme staff, including by adding image evidence to prove their case (ESCWA 2021). Another potential benefit of digitalising grievance and redressal processes is the possibility of submitting a grievance remotely without having to travel to a specific physical location and face the risk of being seen by others. This ensures privacy and reduces the risk of being harassed or penalised for filing a complaint.

Taking into consideration the barriers to rural digitalisation, complaints collection processes may become inaccessible when they are not designed for the target audience (e.g. complaint boards for the illiterate, persons with visual disabilities, indigenous peoples) (Deganis et al. 2021). As websites and mobile applications may not have the necessary adaptations, this can pose a considerable obstacle and can make it harder for people to file a complaint or keep track of how their complaints are being managed (Barca 2016).

Cross-cutting issues

There are some considerations regarding the digitalisation of social protection in rural areas that affect multiple—if not all—steps of the delivery chain.

One issue is that rural dwellers who do have access to digital technologies may still be unable or unwilling to use them due to a lack of motivation or trust (Burattini et al. 2022; Lee et al. 2021; Hadi 2018). Hadi (2018) highlights that, in Indonesia, the interplay between access to education, information and motivation to use digital technologies is a major factor driving the lack of ICT use among rural communities. Low motivation to use digital technologies, linked to the belief that they may be hard to use or may not be useful, is a considerable barrier to digitalisation in rural areas. Evidence suggests that this varies between different subgroups within rural populations (Hadi 2018; Lee et al. 2021; World Bank Group 2022). According to the World Bank (2022), rural women are likely to distrust digital technologies or may be unable to use them due to gendered power imbalances within the household. Age also plays an important role, since digital technologies are generally more accessible to young people (aged 15–24 years), who are 1.24 times more likely to connect to the internet than the rest of the population across the global (Lee et al. 2021; ITU 2022b).

Digitalising systems requires continuous investment in capacities and resources, which countries may not always be able to afford. In rural areas, a lack of basic infrastructure (including non-digital) is a major factor that hinders access to digital technologies (Vasilescu et al. 2020; Burattini et al. 2022). The general lack of investment in rural areas is not just reflected in gaps within the infrastructure of those regions, but also in higher poverty rates among their inhabitants (Oinas-Kukkonen, Karppinen, and Kekkonen 2021). Morphological characteristics of rural areas, such as rough terrain, may be an additional disincentive for service providers to invest in remote rural locations. These factors make the provision of digital services in rural areas an expensive endeavour that becomes unattractive for the private sector (OECD 2018).

Capacity issues may also be present on the supply side of social protection. As commented by Giest and Samuels (2020), governments are not always equipped to handle data. Generally, the capacities of government authorities to use ICTs have a considerable impact on how they can be used for public administration, including of the social protection system (Eom and Lee 2022).

State policies to incentivise the presence of basic and digital services have seldom been a priority in rural areas, but when it does become a priority, the promotion of digital services has yielded good results. For instance, China's digital village plans have transformed rural life and increased farmers' income (Yongchun 2022). However, insufficient infrastructure and a limited number of service providers may result in a lack of supply for potential consumers to choose from, eventually making the choice to access digital technologies unattractive due to unaffordable options (OECD 2018).

There are also several important **human rights issues** that affect the employment of digital technologies for rural social protection. First, it is imperative that programme designs consider rural dwellers' lack of access to (digital) infrastructure and ICTs, as well as their limited digital literacy and trust. Programmes must, therefore, offer multiple options for individuals to apply for, receive and provide feedback about benefits—and individuals must be able to choose between these different options (Chirchir and Barca 2020).

As data are crucial for all stages of social protection delivery, data protection must be considered throughout the entire delivery chain. A robust legal and policy framework is essential for a **rights-based approach to data protection**, as well as capacity-building for those who implement these laws and regulations (Lowe 2022). It is necessary to constantly update and inform social protection recipients about data privacy policies, and use encryption and anonymisation. While some application processes imply consent in sharing data, most beneficiaries are not aware of how their data are going to be used when they enrol in a programme. They may still not question this process, afraid that it could result in the loss of their benefit and being withdrawn from the programme (World Bank 2020b). Those most in need of benefits may feel they have no other option than to accept the terms imposed (Gelb and Mukherjee 2020).

It is also imperative to identify the actors who can have access to the data, and their different levels of access, according to their function in the data-handling process. Data handling includes not only its use, but also seeking the consent of individuals, evaluating the amount of data to be collected, processed, stored and shared, and ensuring that risk management measures are in place to safeguard against data protection violations (World Bank 2020b). For instance, due to data protection and cost concerns, the South African Social Security Agency has opted to implement a more complex, non-manual payments process by procuring ATMs and equipment for disbursing cash benefits in-house, instead of subcontracting this service to third-party private companies, to have more control over the transfers disbursed to the right beneficiaries and in the correct amount.

The next sections further investigate the benefits, risks and trade-offs of digitalising social protection delivery by examining a set of country case studies from around the world.

II. Case Studies

Digital innovations along the rural social protection delivery chain: International experiences before and since the COVID-19 pandemic

To probe deeper into the contributions that digital tools and innovations can make to improve social protection delivery and uptake in rural areas, we now present eight case studies from across all regions which illustrate innovations at both system and programme levels. The case studies cover:

System-level innovations:

- Argentina's National Family Farming Registry
- Morocco's Al Barid Bank and mobile payments
- Türkiye's Integrated Social Assistance Service Information System and e-Devlet digital platform
- Uganda's National Single Registry

Programme-level innovations:

- Cambodia's COVID-19 Cash Transfer Programme
- Jordan's *Takaful 2* programme
- The Philippines' Social Amelioration Programme
- Togo's *Novissi* programme

The methodology used to research these cases consisted of a desk review and key informant interviews, as described in the Annex. We first focus on the system-level innovations, followed by those at the programme level.

Digital innovations at the system level

System-level innovations refer to cases where countries have made use of digital tools to facilitate rural social protection delivery across a variety of programmes; in other words, digitalisation can be considered to have strengthened the social protection system as a whole, not just an individual programme.

The four cases presented next focus on up to two stages of the social protection delivery chain, although other stages will be mentioned briefly when relevant. When applicable, examples from the respective countries' responses to the COVID-19 pandemic will be provided to further illustrate the contributions of these digital innovations to rural social protection.

Beneficiary outreach, registration and enrolment: Argentina's National Family Farming Registry

Digital solution → Digitised farmers' registry

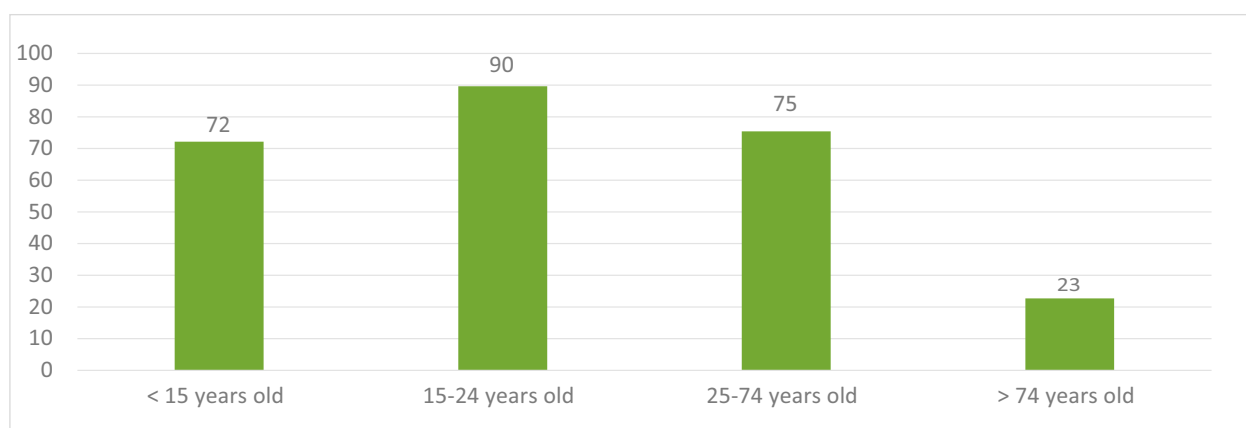
The first case study is Argentina's experience with its **National Family Farming Registry**³ (*Registro Nacional de Agricultura Familiar—ReNAF*). To illustrate its contributions to beneficiary outreach, registration and enrolment, this report will build on examples from the Social Monotax for Family Farmers (*Monotributo Social Agropecuario—MSA*).

3. Despite its name, the ReNAF does not cover family farmers only. See Table 1.

As of 2018, only 8.1 per cent of Argentina’s population lived in rural areas (UNDESA 2018). According to the Directorate of Registries and Formalisation (2022), access to ICTs in rural Argentina is quite heterogeneous. On the one hand, some family farmers earn high incomes comparable to those of small agribusinesses. They are more likely to live in areas with better connectivity and to use relatively advanced technologies, including for agricultural production. However, a large segment of family farmers living in remote areas have no connectivity or access to digital technology. Apart from their lack of income to purchase ICTs, these farmers have limited access to transport infrastructure, commerce and inputs (ibid.).

Argentina’s most recent census data are from 2010: 9 per cent of the population lived in rural areas, of whom 63.7 per cent lived in remote rural areas⁴ (INDEC 2010). Unless these figures have changed substantially in the past decade, large numbers of rural dwellers live in remote areas of Argentina and may thus be prone to being excluded from ICTs. Quantitative data on rural households’ access to the internet or to ICTs were not available. Nonetheless, some aspects of the digital divide in Argentina can be inferred from Figure 1. It suggests that internet access is negatively associated with age, similar to the other countries included in this study (Lee et al. 2021). By contrast, internet access does not differ much by sex (ITU 2022b).

Figure 1. Argentina: Internet users by age group (%), 2017



Source: ITU (2022b).

The data available on access to computers and mobile phones are not disaggregated by urban and rural area. As of 2020, the ITU (2022b) suggests that almost 64 per cent of Argentinian households had a computer at home, and there were 120 mobile phone subscriptions per 100 inhabitants (ITU 2021a).

It is against this background that the ReNAF, created in 2007, gathers data on family farmers. These data are used to identify these farmers, assess their needs and situation, and provide them with a gateway to access a range of public policies directed at them, including social protection services. One important function of the ReNAF has been to lend recognition to a sector (family farming) that had traditionally been ignored or otherwise treated as a vulnerable population in need of social assistance. Instead, the ReNAF, and associated policies, bestow legitimacy on those engaged in family farming. It does so by increasing their visibility, recognising the important productive role they play, and promoting their social and economic inclusion through policies of formalisation and access to social security benefits, among others (Ministry of Agriculture Livestock and Fishing n.d.a; Rolon et al. 2022).

4. Those living in areas with 2,000 inhabitants or less are classified as congregated rural areas, while those living in remote areas are classified as disperse rural areas.

One aspect that makes the ReNAF stand out is its adaptability to the realities of Family Farming Units (*Núcleos de Agricultura Familiar*—NAFs)⁵ located in remote rural areas. As summarised in Table 1, the State and family farming organisations actively reach out to rural populations to raise awareness about family farming as a distinct productive sector and not merely the target of public assistance policies, and to explain what the ReNAF is and why registration matters (Directorate of Registries and Formalisation 2022). Implementation of this registry recognises the limitations of digitalisation and instead actively reaches out to those without access or the ability to use ICTs in person.

Table 1 summarises how the ReNAF works.

Table 1. Argentina: National Family Farming Registry (ReNAF)

Type	Farmers' registry
Eligibility criteria for inclusion in the ReNAF	<ul style="list-style-type: none"> • Be part of a Family Farming Unit (NAF), namely individuals or groups of people (who do not have to be related) living together, sharing essential household expenses and partaking in a shared agricultural activity • Must adhere to the characteristics established by the Law for the 'Historical Reparation of Family Farming': <ul style="list-style-type: none"> – The productive activity must be managed by the family or household. – The NAF must own at least part of the means of production used. – The bulk of or all the productive activity must be done by NAF members, with only complementary support from employees, if any. – Must be a resident of the countryside or a location close to it. Some registered are peri-urban producers. – The agricultural activity of the NAF establishment must be its main source of income. • The activities done by the NAF can fall within the following categories: agriculture, livestock, agroindustry, artisanal fishing, crop harvesting and hunting. • The goal of the NAF's production may include subsistence, market sales, local tourism and crafting. • Those in family farming organisations may register in ReNAF <i>Organizaciones</i> if the organisation's activities promote the production and commercialisation of goods and services of family agriculture, including farmers' capacity, the use of technology, and access to infrastructure.
Outreach and registration	<ul style="list-style-type: none"> • Currently, most NAFs and organisations pre-register on paper. This is overseen by the Ministry of Agriculture (recently merged into the Ministry of Economy), in collaboration with family farming organisations. In those cases (the majority), the Ministry of Economy must approach the NAFs to inform them about family farming and the ReNAF and register them. NAFs were supposed to pre-register themselves online via a smartphone app; however, the development of this tool is paused as of the time of writing, due to changes in the government. • The pre-registration data are received by the directorate or the coordinator responsible for the NAF's province. The data are then verified by a technical expert, who checks whether the producer in question is indeed a family farmer. • Those who are in the ReNAF can download proof of registration from its website; there is no non-digital way of obtaining this certificate.
Enrolment	<ul style="list-style-type: none"> • Data on NAFs can be cross-checked with other registries to verify information for public policies—including social protection and labour programmes—that target family farmers or peasant and indigenous producers. • The cross-checking of the ReNAF with other registries relies on several types of identification keys and occurs automatically for social protection. Different identification keys may be used, depending on which documents are available to NAF members and the registries with which the ReNAF is being crossed. Usually, the national identity document (DNI) is used. • Being registered in the ReNAF is a precondition (although not always enforced) to receive the benefits listed in the Law for 'Historical Reparation of Family Farming', such as, but not exclusively: <ul style="list-style-type: none"> – Social Monotax (<i>Monotributo Social</i>—MS) and Social Monotax for Family Farmers (<i>Monotributo Social Agropecuario</i>—MSA); and – certification of micro-, small- and medium-sized enterprises.

Source: Ministry of Agriculture, Livestock and Fishing (n.d.a; n.d.b); Rolon et al. (2022); Directorate of Registries and Formalisation (2022); Bohl (2021).

5. See the definition in Table 1.

The ReNAF considers the heterogeneity of Argentina's rural populations insofar as it allows NAFs to pre-register through ICTs or in person with paper forms. Those with higher income levels and located in peri-urban or more well-connected rural areas may pre-register through digital applications, as they are likely to already use smartphones. In cases where access to ICTs is available but internet connectivity is substandard, the ReNAF provides technological solutions to make it possible to fill out those forms without an internet connection. It also contains tools to facilitate the scanning of paper forms or to enter the data directly into the ReNAF database. Since most family farmers, especially those in remote areas, do not have access to ICTs, paper-based registration reaches rural populations such as artisanal fishers, horticulturists, native populations and other groups that would otherwise not be reached through digital means (Directorate of Registries and Formalisation 2022).

Along with its approach to digital and analogue outreach, the ReNAF's flexibility regarding the key variables used for beneficiary identification and data verification also highlights how the registry considers the different rural realities. Depending on the purpose for which data on a NAF must be verified, some cross-checking with different registries may require more specific variables, such as tax-related ID codes. However, as a large segment of those registered in the ReNAF are informal workers, it is not guaranteed that they will all have ID codes. Therefore, many farmers are registered based on their DNI, and, when possible, the ReNAF uses this to cross-reference data. More than 99 per cent of the population registered in the ReNAF have a DNI. Those who do not can also be entered into the registry. In cases of remote populations lacking a DNI, it is possible to combine ReNAF registration efforts with registration in the National Registry of Persons so that these populations may acquire their DNI (Directorate of Registries and Formalisation 2022). As such, the ReNAF's functions go beyond social protection, as it expands the reach of the State into Argentina's rural areas.

One way in which the ReNAF promotes the efficiency of rural social protection delivery is by automatically cross-checking family farmers' data with social protection registries. This is the case for eligibility verification for the MSA, for example. Building on the Social Monotax (*Monotributo Social*—MS), the MSA was adopted in 2009 in an effort to promote the formalisation of family farmers by simplifying their tax obligations and enabling them to issue invoices, thereby making them eligible for social insurance with contributions covered by the State (Government of Argentina 2019b). The MSA was terminated in 2018 and reinstated in 2021, although work is still being done to fully recover it (FECOFE 2021; Directorate of Registries and Formalisation 2022).

To verify eligibility for the MSA, the ReNAF is cross-checked with the programme's National Registry of Effectors of Local Development and Social Economy (REDLES), among others. There are also registries with which the ReNAF is cross-checked daily. During the COVID-19 pandemic, for example, to rapidly identify family farmers and quickly deliver the Emergency Family Income benefit to them, the ReNAF was cross-checked with the National Social Security Administration (ANSES) registry. In other cases, the ReNAF is cross-checked less regularly, as is the case with the yearly cross-referencing with data from the National Institute of Viticulture and the National Institute of *Yerba Mate*. Those registered in the ReNAF and in the data of those two institutes may be exempted from some tax obligations (Directorate of Registries and Formalisation 2022).

The ReNAF can also be linked to other programmes that support family farmers' production, thereby fostering greater cross-sectoral coordination between the social protection and rural development sectors that can lead to improving the responsiveness of social protection. By linking NAFs with different social protection programmes and other policies for family farming, the ReNAF facilitates the protection of NAFs against multiple types of contingencies, and promotes their double inclusion, social as well as economic (see Rolon et al. 2022 for more on this matter).

Box 2. Data protection when sharing ReNAF data

All the institutions that share data must comply with Argentina's data protection legislation. In cases of data-sharing with local governments, the parties involved sign confidentiality agreements that last one or two years. Only essential information is shared. It is more straightforward when ReNAF data are shared within the national government, as all activities at the central level fall within the Law for Public Information (Directorate of Registries and Formalisation 2022). On its website, the ReNAF also reassures NAFs that their data are confidential under Law No. 17622 on State Secrets (Ministry of Agriculture Livestock and Fishing n.d.a).

Source: Authors' elaboration.

The use of the ReNAF to cross-check data with other registries not only facilitates eligibility verification and coordination at the national level but also between different levels of government administration. Depending on their exact data needs, there are municipalities or provinces with which ReNAF data are shared for a specific subnational policy. For other municipalities and provinces, the ReNAF is part of temporary work agreements that require data-sharing. Such agreements may entail that the local government in question guarantees to provide resources for the registration of its population, including outreach to inform them of the need to register in the ReNAF. In these cases, the national and subsidiary governments join efforts to fulfil these tasks (Directorate of Registries and Formalisation 2022). Box 2 explains how ReNAF data are protected during instances of coordination within the national government and with local-level authorities.

The MSA serves as an example of how the ReNAF can be used to deliver social protection to rural populations, but also of some of its limitations. Targeting and eligibility (re)assessment for the MSA required the cross-referencing of the ReNAF with the National Registry of Effectors of Local Development and Social Economy. However, it was only the 2015 Law for 'Historical Reparation of Family Farming' that made it compulsory for family farmers to register in the ReNAF to receive any public benefits linked to family farming. Therefore, many producers receiving the MSA until then were not in the ReNAF. There was an effort to register them around 2015, but the MSA and the ReNAF were criticised by the following government administration for the fact that most MSA beneficiaries were not included in the farmers' registry (Secretariat of Family Agriculture, Coordination and Territorial Development 2018). This was one of the reasons used by that administration to terminate the MSA in 2018. The other reason for discontinuing the MSA was that spending on health insurance through the *obras sociales* (union-managed health insurance funds) was deemed inefficient, as those services were allegedly not used enough (Secretariat of Family Agriculture, Coordination and Territorial Development 2018; Directorate of Registries and Formalisation 2022).

The termination and subsequent reinstatement of the MSA, which resulted in a significant drop in the number of beneficiaries, may highlight some of the limits of what a digital tool such as the ReNAF can contribute to social protection uptake and delivery. The decision to terminate the MSA was announced to beneficiaries through notes in the government's gazette. This was communicated by the then Ministry of Agriculture in August 2018, and beneficiaries were given until December of the same year to submit a form notifying whether they wished to be covered by the MS in lieu of the defunct MSA or be removed altogether. If they did not submit this form, they were removed automatically (Secretariat of Family Agriculture, Coordination and Territorial Development 2018; Directorate of Registries and Formalisation 2022). However, several family farmers were unaware of this communication. Out of the approximately 55,000 MSA beneficiaries (19.6 per cent of people in the ReNAF at the time), only 11,300 filled out the form and are currently benefiting from the MS. The remainder returned to informality, as they were no longer included in either the MS or the MSA.⁶ At the time of writing, there are around 20,000 individuals who currently receive the MS, which is just 4.4 per cent of the 450,000 people currently registered in the ReNAF (Directorate of Registries and Formalisation 2022).

6. The MS and MSA contribute to formalisation because they allow family farmers to issue invoices and receive pensions. Thus, if a family farmer cannot participate in one of these schemes anymore, they will have fallen back into informality (Government of Argentina 2019b; Directorate of Registries and Formalisation 2022).

Snapshot: Argentina's National Family Farming Registry

	Outreach and registration	Enrolment
Benefits for implementers		<ul style="list-style-type: none"> The ReNAF enables the automatic or frequent cross-checking of data with other registries When verifying data, it uses identification keys that informal family farmers are likely to have
		<ul style="list-style-type: none"> The ReNAF improves coordination through data-sharing between policy sectors and with local governments
Benefits for the rural population	<ul style="list-style-type: none"> The ReNAF avoids exclusion of those who cannot use digital devices by incorporating non-digital forms of beneficiary registration and by working with family farming organisations to actively reach out to rural populations Registration in the ReNAF can be coupled with the acquisition of the national ID, which is a precondition for accessing a wide range of public services 	<ul style="list-style-type: none"> Family farmers benefit from more comprehensive social protection, as their data contained in the ReNAF can be used for multiple social protection and economic inclusion programmes
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> Current efforts to (re-)register family farmers face barriers such as a lack of ICT connectivity and high costs to reach them 	<ul style="list-style-type: none"> Some family farmers were excluded during the updating of the ReNAF
		<ul style="list-style-type: none"> Inadequate policy decisions have undermined the ReNAF's positive contributions
Current solutions to barriers	<ul style="list-style-type: none"> Local government support for data collection, especially in the outreach to rural populations to raise awareness about the ReNAF Combination of digital and non-digital methods to register NAFs, including collaboration with family farming organisations 	

Source: Authors' elaboration.

To complicate matters, these changes took place around a time when the ReNAF was being updated, and, in the process, several people were removed. Since 2019, the Directorate for Registries and Formalisation has been trying to update their data. The Directorate has identified around 30,000 producers whom they need to register. Some obstacles include the cost of reaching them, due precisely to the lack of access to ICTs and connectivity (ibid.).

In sum, the ReNAF experience is that of a digitised registry with great potential for supporting social protection and the economic inclusion of Argentina's small-scale food producers. Recognising the difficulties of reaching this population segment, the ReNAF has used multiple (digital and non-digital) mechanisms to communicate with and collect data from rural populations, including those living in conditions of vulnerability. This inclusive feature has enabled this registry to address the rights and needs of Argentina's vulnerable rural populations (Rolon et al. 2022; Chirchir and Barca 2020). However, the case of the MSA in 2018 also shows that harnessing digital tools to extend social protection coverage requires a conducive policy environment, in the absence of which progress in ensuring rural people's social protection rights can be easily undone (Directorate of Registries and Formalisation 2022).

Beneficiary outreach, registration and enrolment: Türkiye’s e-Devlet platform and Integrated Social Assistance Service Information System

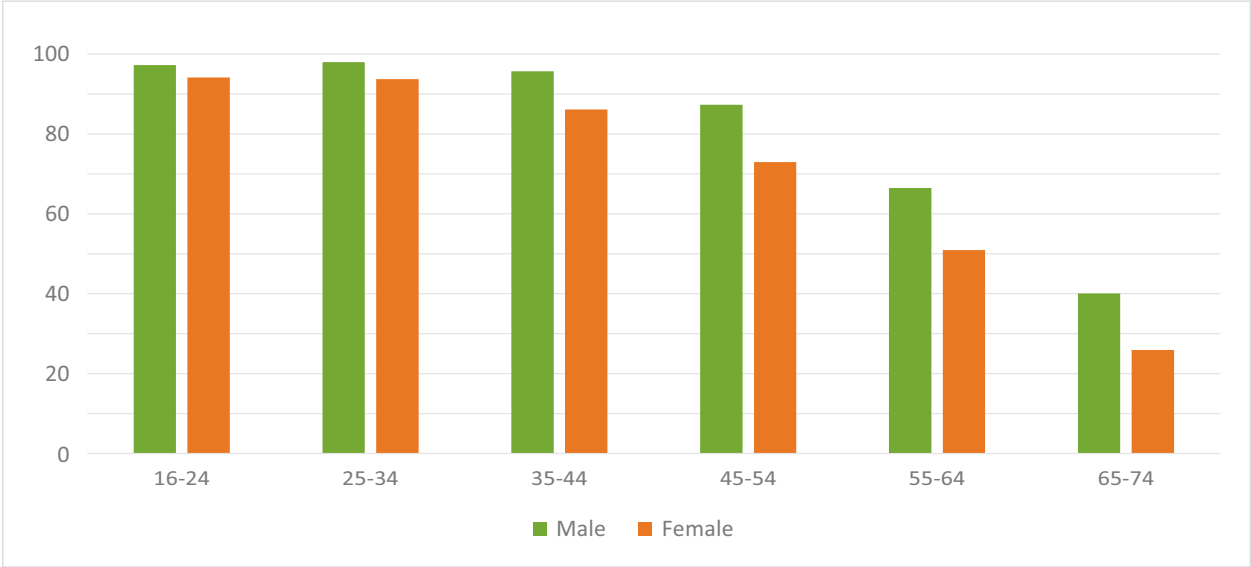


Like the previous case, Türkiye’s experience with the e-Devlet platform and the Integrated Social Assistance Service Information System (ISAS) serves to highlight how social protection systems can employ digital innovations for beneficiary outreach, registration and enrolment, among other functions.

As of 2018, 75.1 per cent of Türkiye’s population lived in urban areas (UNDESA 2018). Since the 2000s, the use of computers and the internet has increased drastically (TurkStat 2021). By 2021, an estimated 92 per cent of households had access to the internet nationwide (ibid.). Mobile internet coverage has seen the most notable expansion, including in rural areas; 3G and 4G operators are presently obliged to cover regions with at least 500 inhabitants, meaning that most areas of the country should be covered with mobile networks. The installation of fixed broadband is not subject to the same regulation and is more resource-intensive, making it more costly; consequently, coverage is expanding more slowly in rural areas (Digital Transformation Coordination Department 2022a).

Currently, there are no data available on ICT access and usage disaggregated by urban and rural area⁷ (ibid.). Nonetheless, national-level data paint a useful picture regarding digital technology in the Turkish context. The proportion of men using computers and the internet is higher than that of women among all ages (see Figures 2 and 3). Further, the older the group, the lower the proportion of computer and internet users (TurkStat 2021). Thus, national data point to a gender and age gap in ICT usage in Türkiye.

Figure 2. Türkiye: Proportions of individuals (16–74 years old) using the internet by age group and sex (%), 2021



Source: TurkStat (2021).

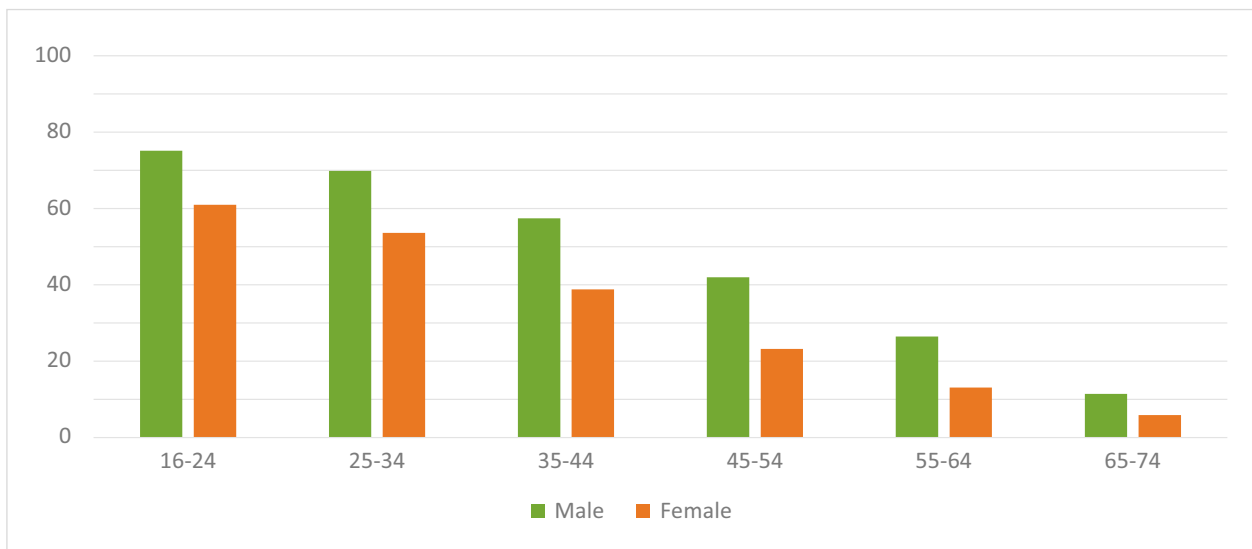
Additionally, ICT usage by employment status, as depicted in Figure 4, hints at unequal access to technology based on socio-economic status. Individuals outside the labour force and independent workers (unpaid family workers and the self-employed) were on the lower end of the spectrum regarding access to computers and the internet in 2018 and

⁷ Türkiye is currently working on aligning its definitions of urban and rural areas with the European Union [Digital Transformation Coordination Department 2022a].

2021, respectively. In contrast, students, employers and regular or casual employees showed higher rates of computer and internet usage. This implies that individuals outside formal wage employment are less likely to access ICTs, yet they are more likely to require social protection.

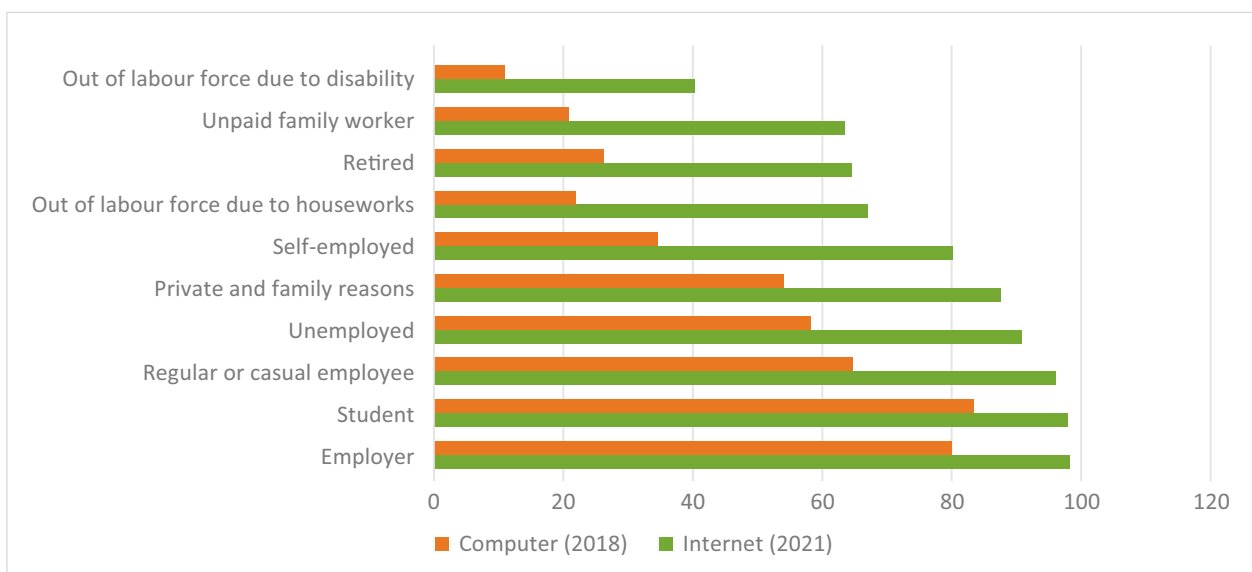
The types of digital divide evident from the abovementioned data may explain discrepancies in people’s usage of e-government services. As evident from Figure 5, women have been much less likely to use these services than men since 2004, with the difference between the sexes reaching 18 percentage points in 2021. This points to a concerning gendered digital divide in terms of access to digital public services.

Figure 3. Türkiye: Proportions of individuals (16–74 years old) using computers by age group and sex (%), 2018



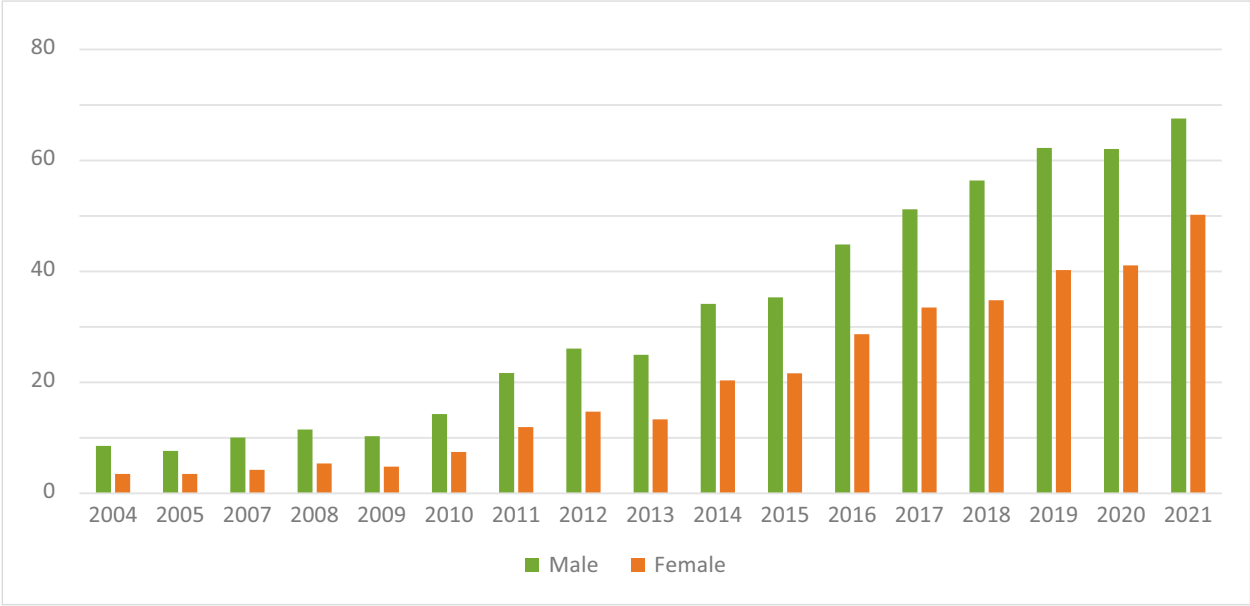
Source: TurkStat (2021).

Figure 4. Türkiye: Proportion of individuals (16–74 years old) using the internet and computers by employment status (%), 2018 and 2021



Source: TurkStat (2021).

Figure 5. Türkiye: Proportions of men and women (16–74 years old) interacting with public authorities via e-government (%), 2004–2021



Source: TurkStat (2021).

It is against this background that the **e-Devlet (e-government) platform** and the **ISAS** are used to facilitate the provision of social protection, including for rural populations. Both e-Devlet and ISAS were already used prior to the pandemic, but social protection services were quickly linked to the e-Devlet platform from the onset of the COVID-19 crisis, thereby enhancing the responsiveness of the Turkish social protection system at a time of dire need. Prior to the pandemic, individuals had to visit a Social Assistance and Solidarity Foundation (SASF) office in person, where its staff would enter their data into the ISAS. By moving the social protection application process to e-Devlet during the pandemic, data could be fed into the ISAS directly through the platform (Digital Transformation Coordination Department 2022a; Ministry of Family and Social Policy 2022a).

These tools have reportedly improved fraud detection, made data collection and updating more agile, added convenience when accessing government services, increased efficiency, and prevented duplication during application and beneficiary selection (Ministry of Family and Social Policy 2022a; Digital Transformation Coordination Department 2022a). Table 2 provides a brief overview of how the tools work. To complement the ensuing discussion on how they contribute to rural social protection, some examples will be provided from the Pandemic Social Support Programme in Türkiye.

The possibility to apply for social protection programmes through e-Devlet since the onset of the COVID-19 pandemic has facilitated access to social protection, as personal visits to the SASF offices are logistically more difficult and incur high transportation costs in rural areas (Digital Transformation Coordination Department 2022a; Ministry of Family and Social Policy 2022a). In fact, as shown in Figure 6, the general use of e-government services for downloading and submitting completed forms—although not necessarily for social protection—increased between 2020 and 2021, while it had decreased in the year prior to the onset of the pandemic (TurkStat 2021). While no indicators were available to measure e-Devlet’s concrete contributions to social protection, the platform has been praised for the increased convenience in procuring government services online rather than having to visit agencies in person (Digital Transformation Coordination Department 2022a).

Table 2. Türkiye: e-Devlet digital platform and Integrated Social Assistance Service (ISAS) information system

	E-Devlet digital platform	ISAS information system
Type	Online platform	Integrated beneficiary registry
Target audience for e-Devlet and ISAS	<p>The following groups may use e-Devlet:</p> <ul style="list-style-type: none"> • Citizens over 15 years old • Blue card and residence permit holders • Citizens with a valid electronic or mobile signature • Turkish Republic ID card holders 	<p>Anyone 18 years old or older who applies for a social assistance programme can use the ISAS. There are 64 social assistance programmes linked to the ISAS under 49 categories such as old-age and disability allowances, birth assistance, conditional cash transfers for education and health etc.</p>
Outreach and registration	<ul style="list-style-type: none"> • Gateway through which ministries' services can be accessed • E-Devlet does not store individuals' socio-economic data (in the case of social assistance programmes). • Since the pandemic, individuals have been allowed to apply for social assistance through the platform with no data retained but disseminated to the ministries responsible for delivering the assistance. <p>The following steps outline how e-Devlet is used:</p> <p>1a. Apply for a password in person at a central post office (PTT) or other authorised branch: Submission of photo ID and a Turkish Republic ID number. Several types of ID are accepted, including blue cards or residence permits.</p> <p>1b. Apply for a password via mobile signature, electronic signature or Turkish Republic ID card: Create a password online on the e-Devlet platform.</p> <p>2. Confirmation of identity: By signing in, citizens confirm their identity (those who applied in person or via their mobile phone).</p> <p>3. Receive e-Devlet identification: The information entered by the individual is sent to the relevant government institution through secure links. Once all necessary data have been transferred, the individual is notified on the platform.</p> <p>4. Receive government services requested through the platform: Individuals can request government services, ranging from medical appointments to social protection benefits. Once the requests are forwarded to the respective institution, applicants are notified through the platform of their application status by these institutions through secure links.</p>	<p>Used for applications for all social assistance programmes:</p> <p>a. Apply for social assistance via the 'Social Assistance Applications Service' on e-Devlet:</p> <ul style="list-style-type: none"> • Individuals enter information on their socio-economic status into a standardised form and can write notes while applying. • Applicants also submit a consent form to allow institutions to use their data to verify their socio-economic status. • Bank details such as IBAN can be provided during this step. <p>b. Apply for social assistance in person via the Social Assistance and Solidarity Foundation (SASF) office:</p> <ul style="list-style-type: none"> • The application forms are completed in person as hard copies, and the social assistance and inspection officer notes the applicant's IBAN and other information into the ISAS.

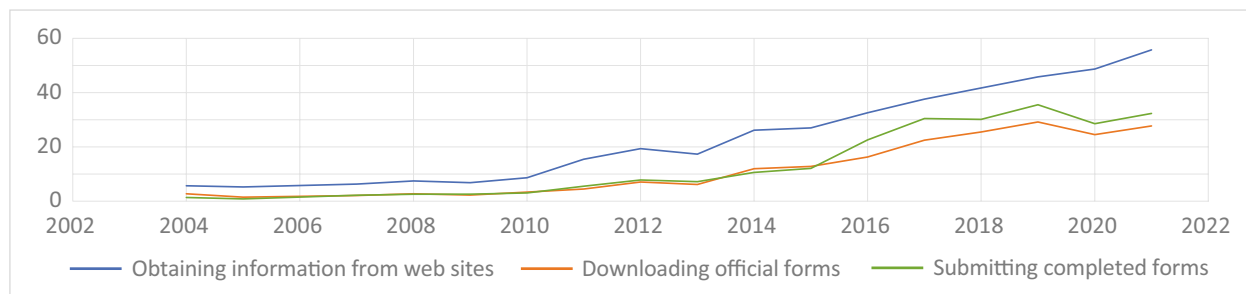


	E-Devlet digital platform	ISAS information system
Enrolment	<p>Indirectly supported: Beneficiaries can be notified of their eligibility and the benefit amounts they are entitled to receive through the platform.</p>	<p>The ISAS contains information on citizens and refugees (kept separately) and supports targeting through the following steps:</p> <ol style="list-style-type: none"> 1. Generation of socio-economic profile: The ISAS links information entered by the SASF with datasets from other institutions based on the applicant's unique ID number. The data used to determine the socio-economic status of social assistance beneficiaries are gathered mainly from the ISAS, which is fed from databases of other government and related organisations (such as the Turkish Red Crescent). Household visits are also important for gathering data but are mostly a means for confirming ISAS data. 2. Profile validation: An SASF social assistance inspection officer visits the applicant's household to verify the information submitted. They assess items such as the home, agricultural land, livestock and vehicles. 3. Establishment of socio-economic profile: The social assistance and inspection officer ranks the household according to its socio-economic status. This, along with the information collected, is uploaded and recorded in the ISAS. Currently, this step is to be transferred to tablets and is being evaluated for cost-efficiency and security issues. 4. Eligibility assessment for social assistance programmes: The SASF Board of Trustees uses the socio-economic profile to assess eligibility for social protection programmes. An applicant's profile can be viewed directly through the ISAS. 5. Notification of eligibility: Applicants are notified of which social assistance programmes they are eligible for. Applicants can check their social assistance status through e-Devlet. For some assistance programmes, beneficiaries are notified by SMS, or, in some other cases, the SASF can notify them by phone.
Delivery (only directly supported by the ISAS)	<p>It is the responsibility of the ministries, not e-Devlet, to deliver the services, including GRMs.</p>	<ul style="list-style-type: none"> • Individuals eligible for cash transfers receive them via their bank account if they have provided their IBAN code. This was the primary payment modality during the pandemic. • Bank transfers continue to be used in addition to the SASF's paying out cash to beneficiaries. • However, the main delivery method for regular cash-based assistance are PTT cards. If those eligible receive their benefits via the PTTs, they can retrieve them at the post office by proving their ID or using a PTT card that they get from the post office (similar to the use of a bank card at an ATM). This payment modality was also used during the pandemic.

Source: Digital Transformation Coordination Department (2022a; 2022b); Ministry of Family and Social Policy (2022a; 2022b; 2022c); UN ESCAP (2019); FAO (2022); Government of Türkiye (2022); TurkStat (2020); UN Türkiye (2020); Ministry of Family and Social Policy and World Bank (2017); Director General of Communication (2016).

During the COVID-19 pandemic, electronic application for social protection via e-Devlet resulted in around 4 million applicants for the Pandemic Support Programme in just two weeks (Digital Transformation Coordination Department 2022a; 2022b; 2022c). Furthermore, those already registered in the ISAS received the cash benefit for this programme automatically, without needing to apply for it (TurkStat 2020). While the digital processes were initially only possible for the Pandemic Support Programme, they are now in place for all social protection measures (Digital Transformation Coordination Department 2022a; 2022b; 2022c).

Figure 6. Türkiye: Proportions of individuals (16–74 years old) using e-government services by activity (%), 2004–2021



Source: TurkStat (2021).

The ISAS is also credited for providing big data to the Turkish State (Ministry of Family and Social Policy 2022a). As summarised in Table 2, it contains information that is used by a multitude of social protection programmes (UN ESCAP 2019). While this registry already supported the Turkish social protection system with integrated beneficiary data prior to COVID-19, the possibility for individuals to apply for social assistance via e-Devlet since the onset of the pandemic has increased the frequency with which socio-economic data are added to the ISAS (Ministry of Family and Social Policy 2022a).

With the convenience introduced through e-Devlet, individuals can now update their information as soon as their conditions change. Since the application process is online and pre-assessment is already in place, the determination process to grant a benefit or not is shortened. Such updates were previously possible around once a month, and now they can be done around every 15 days if necessary (ibid.). Further, as the ISAS is linked to all social assistance programmes in the country and has access to different government databases for data verification, fraud and duplication can be avoided, and individuals do not have to submit multiple benefit applications (ibid.).

In terms of data protection, both e-Devlet and the ISAS seem to be thoroughly regulated. The ISAS uses a two-factor authentication process (Ministry of Family and Social Policy and World Bank 2017). E-Devlet does not collect or keep information; it only retains the personal data necessary to maintain relations with individuals, so the main responsibility for protecting their data lies with the respective ministries, which save them according to privacy and data protection regulations (Digital Transformation Coordination Department 2022a). The platform ensures data encryption and safeguards the few personal data it gathers, based on Türkiye's privacy authority, which monitors the platform regularly (ibid.).

Further, e-Devlet belongs to the government-owned company TurkStat, whose guidelines on data security apply to the platform. Those government bodies in charge of ICT systems linked to e-Devlet are responsible for safeguarding the data security of those systems. Their data protection protocols are audited periodically and are published by the Digital Transformation Office of the Presidency (see Box 3). As such, data protection is decentralised when it comes to the platform (Digital Transformation Coordination Department 2022b; 2022c).

Finally, the ability to request social protection online since the pandemic guarantees an additional layer of privacy for individuals living in rural areas, who can now apply for the benefit directly. Beforehand, they needed to go to the SASF office or request assistance through village heads serving as middlemen between them and the SASF (Digital Transformation Coordination Department 2022a).

Nonetheless, while citizens mainly seem to benefit from the convenience offered by e-Devlet, there appear to be some issues that require further examination. On the one hand, the platform increases transparency with respect to the services provided and the functioning of government. This, however, may come into conflict with the institutions' reluctance to share certain types of data. Usually, financial data are less controversial, but security and judicial information usually requires a greater need for protection (Digital Transformation Coordination Department 2022a).

Box 3. Cybersecurity in Türkiye

The Digital Transformation Office was established in 2018 and publishes the ‘Information and Communication Security Guide’ that government bodies must follow. This guide regulates data protection to prevent information security issues and to assign responsibilities regarding this topic, among other objectives. All government bodies and “critical infrastructure providers” must follow the guide. The institutions addressed by the guide must comply with the provisions contained within it and the security measures defined by the Digital Transformation Office of the Presidency.

The guide contains provisions for different asset groups, namely networks and systems, applications, removable and physical media, internet of things devices, and personnel. Institutions must investigate different dimensions of information security of each asset group and perform a gap analysis before developing and implementing data security measures.

Source: Mataracioglu (2022); Digital Transformation Office (2022c).

Notably, informants interviewed for this paper doubted that living in a rural region specifically would pose a barrier to using the e-Devlet platform. Instead, they emphasised the digital divide based on age, which is also reflected in TurkStat’s data on ICT usage in general. Elderly persons tend to face more difficulties in navigating these digital government services. Since Türkiye’s rural residents are comparatively older than their urban counterparts, they may be facing more difficulties in accessing social protection due to their lack of digital literacy (see Figure 2) (Digital Transformation Coordination Department 2022a; TurkStat 2021). Prior to the pandemic, those with difficulties accessing social protection services digitally could procure them in person (Ministry of Family and Social Policy 2022a). During the pandemic, innovations were required to ensure that those without digital literacy skills or access to ICT devices and adequate internet connectivity were not excluded. Teams of volunteers were thus formed across Türkiye to help elderly persons and people with disabilities or chronic illness meet their needs (Digital Transformation Coordination Department 2022a).

Snapshot: Türkiye’s e-Devlet digital platform and Integrated Social Assistance Service information system

	Outreach and registration	Enrolment
Benefits for implementers		<ul style="list-style-type: none"> E-Devlet increased the frequency with which data can be updated ISAS enables the availability of big data that can be used for the entire social protection system
Benefits for the rural population	<ul style="list-style-type: none"> E-Devlet saves transportation costs and time when accessing government services E-Devlet adds another layer of privacy by avoiding middlemen E-Devlet facilitated informal workers’ access to pandemic relief after the onset of COVID-19 	<ul style="list-style-type: none"> Informal workers could be reached by emergency assistance during the pandemic thanks to the data stored in the ISAS database (among others)
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> Application via e-Devlet could exclude those unable to use ICTs 	<ul style="list-style-type: none"> Reluctance of government institutions to share data, especially related to security and judicial processes
Current solutions for barriers	<ul style="list-style-type: none"> In-person visits by post office staff to help individuals create e-Devlet log-in details 	

Source: Authors’ elaboration.

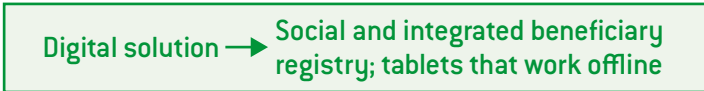
Being able to register for social protection only digitally risked excluding disadvantaged groups. Recognising this risk, the Turkish government implemented another measure to guarantee access to social protection to those disadvantaged by the digital divide. To facilitate access to e-Devlet during the pandemic, post office staff visited the homes of those lacking access to the platform to provide them with their passwords and usernames (referred to as ‘tokens’) in person (Digital Transformation Coordination Department 2022a). These tokens are either (i) electronic ID cards that can be read by a

card reader for users to log into e-Devlet; or (ii) usernames and passwords that can be used for individual authentication via SMS two-factor authentication (Digital Transformation Coordination Department 2022b). People aged 65 years or more received this service free of charge, whereas, normally, those below that age had to pay a fee to request their tokens to access e-Devlet (Digital Transformation Coordination Department 2022a; 2022b). Once the tokens were provided, these individuals could also access the platform and apply for social protection digitally (Digital Transformation Coordination Department 2022a; Ministry of Family and Social Policy 2022a).

Elderly persons having trouble with e-Devlet was not the only concern. Another was the potential exclusion of informal workers from assistance during COVID-19, as they would normally not have been receiving social assistance benefits before the pandemic or benefiting from unemployment services, which are often linked to formal jobs. Despite this problem, the data that were already stored in the ISAS and related databases, along with the applications from informal workers via e-Devlet, allowed them to benefit from emergency social assistance during the pandemic (Ministry of Family and Social Policy 2022a; Digital Transformation Coordination Department 2022a).

While it is now possible to apply for social protection in person again, the distance and transportation costs incurred to visit an SASF office imply that those living in remote areas and lacking digital skills, such as women, elderly people and those outside formal employment, may continue to face significant barriers to access social protection. The availability of post office staff visits to people’s homes may be one way of addressing this issue. Moreover, the use of electronic ID could ideally spare individuals from having to request a password or username, or from the need to register their mobile phones with the post office. However, the introduction of such ID has not yet occurred in the country and may not necessarily circumvent the issue of digital literacy altogether (Digital Transformation Coordination Department 2022a).

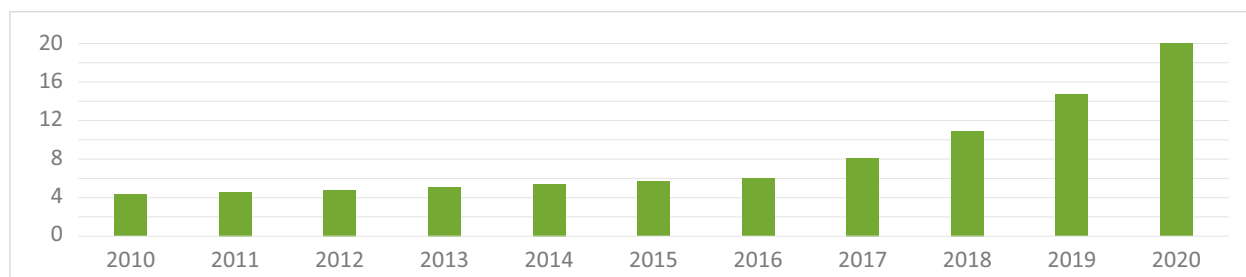
Beneficiary enrolment: Uganda’s National Single Registry



Uganda’s experience with its **National Single Registry (NSR)**—which acts as both a social and an integrated beneficiary registry⁸—will be used as a case study on how social protection systems can employ digital innovations for beneficiary enrolment.

According to Gillwald et al. (2019), 86 per cent of the population lack internet access—a figure that differs slightly from that reported by the ITU (2022b) shown in Figure 7. Half of those people had no access to computers or phones that could connect to the internet (Gillwald et al. 2019). Looking at the national level, the ITU (2022b) reported that, as of 2018, households with a computer at home constituted only 4 per cent of all internet users in the country. In 2022, 29.1 per cent of the population use the internet (Nabaye 2022).

Figure 7. Uganda: Proportion of individuals using the internet (%), 2010–2020



Source: ITU (2022b).

8. Social registries keep socio-economic data on potential beneficiaries, while beneficiary or single registries keep data about “beneficiaries, payments and complaints and grievances across multiple social protection interventions” (Development Pathways 2022, 3).

Table 3. Uganda: National Single Registry (NSR)

Type	Social and beneficiary registry
Target audience for the NSR	<p>It is predominantly government agencies that use this tool:</p> <ul style="list-style-type: none"> • The National Identification and Registration Authority (NIRA)⁹ is the entity responsible for verifying data of enrolled beneficiaries. • Users from the Ministry of Gender Labour and Social Development can access the NSR with a login and password. <p>The general public may access a dashboard containing statistical information about the status of the programme, as well as reports and publications.</p>
Outreach and registration	Registration not supported by the NSR: Applicants must register for benefits through individual programmes, using their national ID.
Enrolment	<p>Beneficiaries are verified against the NIRA ID database. The NIRA then enters their data into the NSR, which is the unified gateway to the NIRA, for data verification. The goals of the verification process are to ensure ID numbers are valid and identify those benefiting from multiple programmes.</p> <p>Enrolment steps supported by the NSR:</p> <ul style="list-style-type: none"> • Once programmes have verified the information on individual ID through the NSR, this registry shares it with programme administrators for enrolment. The lists are also shared with other stakeholders, including district administrators, for purposes of further verification at community level. • The administration of each district then organises meetings with parish and subcounty authorities to verify the IDs (to check if the person is still alive or has moved to a new location) and collect and incorporate additional data (such as village or farmer registration lists). Only the data of potential beneficiaries who are part of the NIRA database are verified. In instances of poor connectivity, digital data collection tools with offline modes are used. When the officials get to regional offices with better connectivity, the data are synchronised and uploaded via the respective programme MIS. • The NSR compiles and stores information on a range of national social protection schemes and their beneficiaries. It includes data on potential social protection beneficiaries from the World Food Programme's Karamoja Social Registry and Social Assistance Grants for Empowerment (SAGE). Social protection programmes that can integrate information with the NSR MIS include: <ul style="list-style-type: none"> – the National Social Security Fund; – the Northern Uganda Social Action Fund; – Orphans and Vulnerable Children; – the Uganda Child Helpline; – the Uganda Women Entrepreneurship Programme; – the Youth Livelihood Programme; – the Public Service Pension Scheme; – the Development Response to Displacement Impact project; and – the list of refugees. • The NSR provides dashboards comparing beneficiaries enrolled against geographic quotas defined by social protection schemes.
Delivery(indirectly supported)	<ul style="list-style-type: none"> • Facilitates disbursements for SAGE based on the information stored within it and processed with its MIS • Beneficiary information from the NSR is shared with the respective bank, which then proceeds with the necessary process for benefit delivery.
Grievance and redressal	Dashboard with a 'complaints view' for grievances showing logged and resolved complaints: the view will have provisions for filtering options, including 'programmes' and 'district', to track complaints coming from rural areas.

Source: The Independent (2022); Development Pathways (2022); Chirchir and Farooq (2017); Ministry of Gender, Labour and Social Development (2022a; 2022b; 2022c; 2022d).

9. The NIRA is responsible for Uganda's National Identification Registry, which entails the registration of all citizens' and legal residents' births and deaths, and the assignment of national ID numbers. These national IDs are required as part of the registration process for social protection programmes (Ministry of Gender, Labour and Social Development 2022c).

Nearly a quarter (23.8 percent) of Uganda's population lived in urban areas in 2018 (UNDESA 2018). As recently as 2020, four in every five Ugandans lacked access to the internet (ITU 2022b). Recent data suggest that there is a 70 per cent gap between urban and rural populations in terms of internet use: in 2019, just 9 per cent of rural Ugandans had internet access, compared to 30 per cent of their urban counterparts (Gillwald et al. 2019). The gap arises from a number of factors, including a lack of access to electricity and lagging ICT infrastructure. Just 7 per cent of rural households were connected to electricity in 2019. Setting up and maintaining fibre-optic cable is expensive, limiting its expansion in the country. While there has been a policy response to address this issue (one example being efforts to make telecommunications investors share infrastructure to reduce internet prices (Biryabarema 2018)), the expansion of this infrastructure to rural areas remains hindered by the high costs for internet providers. Low levels of digital literacy also lead to low internet usage. Clearly, significant progress is needed to expand access and usage, especially in the rural areas of the country (Ministry of Gender, Labour and Social Development 2022c).

According to Uganda's most recent household survey, conducted in 2014, just slightly over half of households owned a mobile phone. Rural residents were much less likely to own ICT devices than their urban counterparts. A gender divide was also identified, with 64 per cent of male and 49 per cent of female household heads owning a mobile phone (UBOS 2014). Mobile phone subscriptions reached a peak of 61 per 100 inhabitants in 2020. In 2016, the proportion of active mobile broadband subscriptions stood at 44 per cent (ITU 2022b). While these numbers are likely to have increased since then, it is also likely that differences in residence and gender continue to play a role in ownership of mobile phones and internet access.

In this context, the NSR has leveraged Uganda's growing ICT infrastructure and usage to help centralise beneficiary enrolment for the country's social protection programmes. It was created to support Uganda's National Social Protection Policy by merging beneficiary databases from existing programmes (Development Pathways 2022; Ministry of Gender, Labour and Social Development 2022c). Even though the NSR was launched in 2021, Uganda's Vision 2014 already emphasised the need to establish a unified registry to harmonise and coordinate information management across different sectors of social protection. The registry went through several phases over multiple years, including design, development, implementation and maintenance (Development Pathways 2022). Table 3 provides a brief overview of how the NSR works and is then followed by a discussion of the role of this registry for beneficiary enrolment in rural Uganda.

Improved efficiency in the handling of data has been one of the benefits brought about by the NSR. Data that were being handled manually by people are now managed through the NSR and can be updated instantaneously when the information is entered. This increases the accuracy of targeting so that resources are allocated to the rightful beneficiaries, reducing the cost of service provision (Ministry of Gender, Labour and Social Development 2022c).

There is also a verification service where the social protection programmes link together to verify the beneficiaries of a specific programme (ibid.). By including data from multiple programmes, this verification process helps identify beneficiaries who might be receiving overlapping benefits from multiple programmes, and thus informs decisions about their exit from certain programmes (ibid.).

The government has taken a number of steps to ensure the inclusion of social protection beneficiaries from rural areas. First, the use of national IDs rather than other identifiers such as tax numbers may make enrolment more accessible to those involved in informal labour. Second, the organisation of meetings with villages to verify applicants' ID and incorporate additional data denotes an awareness of the limitations of digital tools for reaching poor people in rural areas of the country. Third, the option to use digital data collection tools with offline modes highlights an additional way in which the NSR strives to include those living in rural areas with connectivity issues (ibid.). This provides a potential solution for dealing with the relatively low network signal strength and inadequate access to electricity in rural areas—a significant problem for data collection by village staff, especially when they use tablets for registration.¹⁰

10. This adaptation to limited connectivity may also increase the precision of data collection, as offline digital tools can reduce errors derived from human intervention when transferring data collected on paper to a digital database.

Notwithstanding these measures, and although the use of national IDs is a move in the right direction insofar as it can ease access to social protection benefits, the fact remains that most vulnerable groups in Uganda lack ID cards. Further, when IDs are lost, it is difficult to obtain a replacement, as it requires a letter from the police, a hefty payment and, possibly, travel to Kampala (Ministry of Gender, Labour and Social Development 2022c; FAO UG 2022). Individuals may also lack a permanent physical address, leading to challenges in finding people who have moved (FAO UG 2022). Poor people living in rural areas may, therefore, be excluded, or the data available on them may contain gaps or be outdated.

Shortcomings have also included errors occurring when transferring data from hard-copy lists to digital platforms. A phone or ID number that is entered incorrectly means that the system rejects the beneficiary once checked against National Identification and Registration Authority (NIRA) or telecom data (Ministry of Gender, Labour and Social Development 2022d). Besides, the use of hard-copy data may foster concerns in terms of data protection, as the hard copies with personal information must be transported by those responsible for data collection (consideration based on Chirchir and Barca 2020).

Still, a paramount challenge for the NSR is the lack of digital literacy in the country. Sometimes local council chairpersons are required to collect information on behalf of the government (for example, on people's eligibility for a programme based on their socio-economic status), but they are seldom equipped to handle digital devices and tools. Addressing capacity constraints at local level, along with issues of limited digital illiteracy and faulty tablets used for data collection, should help improve the identification of rural beneficiaries for social protection programmes (Ministry of Gender, Labour and Social Development 2022c; FAO UG 2022).

In fact, the lack of equipment available to villages was one of the factors that led to the NSR not being used for the identification of beneficiaries for the COVID-19 response. Instead, a hard-copy system was followed (Ministry of Gender, Labour and Social Development 2022c; 2022d; FAO UG 2022). Ultimately, given rural Ugandans' limited access to ICT resources and the high cost of electricity, it is vital for the NSR to incorporate non-digital channels whereby rural dwellers are visited in person to ensure they are included in the registry. This is bound to be a costly, but necessary endeavour.

Snapshot: Uganda's National Single Registry

	Enrolment
Benefits for implementers	<ul style="list-style-type: none"> • Data can be updated more frequently through the NSR • Better data verification, as multiple programmes are linked to the NSR • Usage of simple identification keys (namely IDs) that are more likely to be widely available • Contains useful data for the disbursement of payments
Benefits for the rural population	<ul style="list-style-type: none"> • Increased targeting accuracy so that resources reach the correct beneficiaries
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> • Challenges in terms of finding people who have moved, due to the lack of physical addresses • Those in charge of data collection may lack digital literacy or access to the necessary technology. • Deletion of people from the NSR is not automatic. • While IDs are simpler identification keys, the most vulnerable in Uganda may still lack IDs, which are also expensive and time-consuming to replace when lost.
Current solutions for barriers	<ul style="list-style-type: none"> • Use of offline digital tools to circumvent issues related to the lack of internet connection or digital literacy • The organisation of villages for the verification of ID and incorporation of data of rural beneficiaries, and personal visits to those living in those areas, mitigate the risk of exclusion from the NSR.

Source: Authors' elaboration.

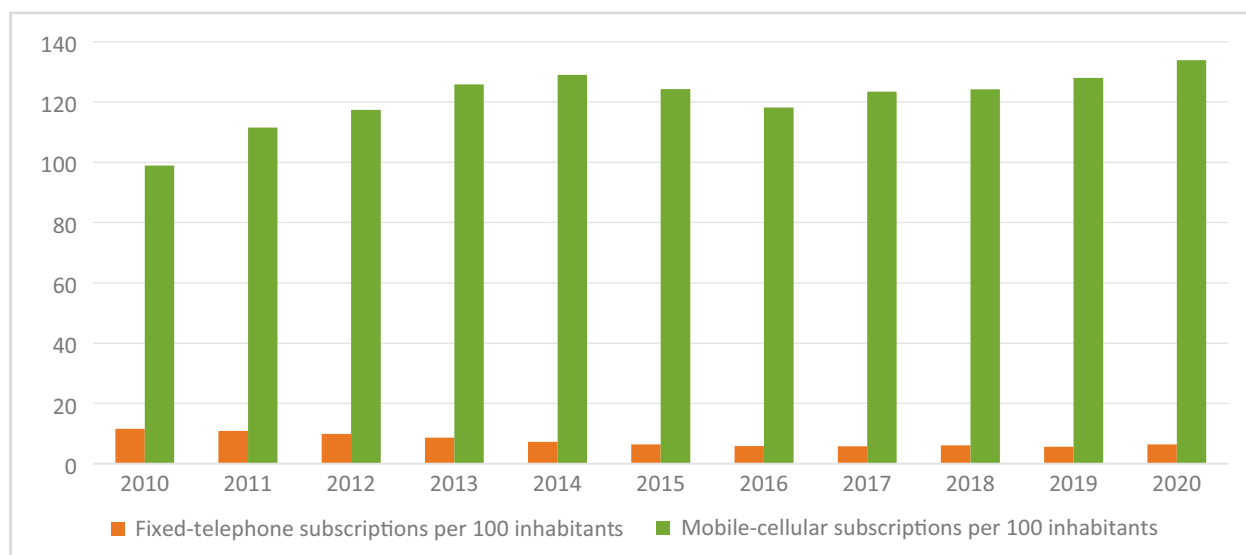
Benefit delivery: Morocco's Al Barid Bank and mobile payments

Digital solution → Postal bank, mobile money

One case that illustrates the potential of digital innovation for benefit delivery in rural areas is **Morocco's Al Barid (postal) Bank (ABB)** and the newly introduced **mobile payments**.

As of 2018, 37.5 per cent of Morocco's population lived in rural areas (UNDESA 2018). Data disaggregating mobile phone and financial inclusion indicators by urban and rural area are not available. However, Figure 8 shows that there were nearly 140 mobile phone subscriptions for every 100 people in 2020, meaning that some people have multiple phone subscriptions. Note that this figure does not disaggregate between urban and rural households, so this proportion is likely to be smaller among rural dwellers. Still, since the data do not specify whether mobile phones are smartphones, it is not clear how many of the mobile phone subscribers would have mobile internet access or the ability to download apps to use digital social services.

Figure 8. Morocco: Telephone subscriptions per 100 inhabitants, 2010–2020



Source: ITU (2022b).

In terms of financial inclusion, data from 2017 show that only 29 per cent of the population aged 15 or above had an account with a financial institution or used a mobile money service, though this proportion drops to 17 per cent among women. Further, just 17 per cent of the population aged 15 or more made or received a digital payment that same year (World Bank 2022b). While these indicators must have improved in recent years, it is nonetheless likely that they continue to be worse in rural areas of the country.

The government is currently implementing its National Strategy for Financial Inclusion, which contemplates the development of a mobile payment modality (via smartphones and basic phones) that will be used for the delivery of social protection benefits such as the *Tayssir* conditional cash transfer.¹¹ This new payment method was launched with a pilot phase, now in its final stages, and entails a shift away from relying solely on ABB for making payments, apart from other changes to the programme (Former Tayssir Directorate 2022).

11. Tayssir provides cash transfers to families with children aged 6–15 years who are enrolled in school (Ministry of Economy and Finances and Ministry of National Education, Preschool and Sports 2022; socialprotection.org 2022c).

Table 4. Morocco: Al Barid Bank and mobile payments

Name	ABB	Mobile payments
Type	Payment modality	
Target audience	ABB branches cover the entire Moroccan territory and are used by the <i>Tayssir</i> and <i>Daam</i> programmes to deliver their benefits.	<p>They are currently being rolled out for the <i>Tayssir</i> programme's beneficiaries and will also be used by commercial establishments and merchants in the future. During this pilot phase, mobile payments are available in four nationally representative geographical zones, namely:</p> <ol style="list-style-type: none"> 1. the rural province of Azilal, whose population is hard to reach due to its mountainous geography; 2. an urban town in the predominantly rural Ben Guerir; 3. two urban municipalities; and 4. the cities of Fes and Meknes.
Delivery	<p>As a postal bank, ABB cooperates with the Moroccan government in disbursing money orders to beneficiaries of social protection programmes.</p> <p>Social protection beneficiaries can receive their cash transfers in two ways:</p> <ul style="list-style-type: none"> • by retrieving them from ABB branches; or • from mobile agencies or counters comprising ABB agents travelling to beneficiaries' places of residence, including in remote areas. 	<p>The roll-out of this payment mechanism followed the following steps for the <i>Tayssir</i> pilot:</p> <ol style="list-style-type: none"> 1. Awareness campaign to inform households and merchants of the benefits of mobile payment 2. A registration campaign of <i>Tayssir</i>'s beneficiary households was rolled out in which they were asked to open accounts with payment establishments through mobile phones, which could be done remotely and for free; in some remote areas, payment institutions set up mobile units that travelled to the <i>douars</i> (rural administrative units) to open accounts for eligible households. 3. After opening their bank accounts, households' information was collected by <i>Tayssir</i> implementers through schools; the households needed to contact the school directors, who informed them of the different payment types and providers. 4. The school directors informed the <i>Tayssir</i> implementers of the households' bank account identification (RIB) and bank account numbers, who, in turn, passed the data on to the central government level. 5. These data were verified by cross-checking with information contained in the Ministry of Interior's database, focusing especially on ID details. 6. The verified data were then passed on to the economic group serving as the hub of this mechanism, which coordinates with the Ministry of National Education and the different banking establishments involved in the mobile payment mechanism. Once the household's banking information was verified, the <i>Tayssir</i> implementers released the transfers. 7. <i>Tayssir</i> beneficiaries received a text message on their mobile phone, informing them that the transfer had been made. 8. The database of <i>Tayssir</i>'s implementing agency was also notified automatically, as it uses a management system that is decentralised at the school level, allowing <i>Tayssir</i>'s implementing agency to receive the beneficiary household information directly entered by school directorates. <p>There are 16 payment or bank establishments involved in the mobile payments,¹² including ABB as a central partner. Mobile payments are also available for those without smartphones.</p>

Source: Former Tayssir Directorate (2022); Universal Postal Union (n.d.); socialprotection.org (2022c; 2022a).

Prior to the launch of the mobile payments, ABB was the main partner of *Tayssir* and some other programmes for benefit delivery (socialprotection.org 2022c; 2022a; Universal Postal Union n.d.). Being linked to the postal service, the bank had nationwide geographical coverage, including in rural areas, which was the reason why it was chosen to support the delivery of cash transfers (Former Tayssir Directorate 2022; Universal Postal Union n.d.). For *Tayssir*, this meant that ABB's ability to provide cash transfers via its mobile counters allowed benefits to be delivered to people living in remote rural areas (Former Tayssir Directorate 2022).

12. Mobile payment users can open accounts, take cash out at the counters of the respective establishments and receive SMS notifications for free. Fees apply, however, to pay cash in, pay invoices or purchase goods.

However, despite ABB's wide geographical reach, this payment mechanism still posed major logistical hurdles and accessibility issues, due to high transportation costs to remote areas and a lack of means of transportation (ibid.). Therefore, those responsible for implementing the *Tayssir* programme began to consider the creation of a new payment modality, which resulted in the mobile payments. This plan was developed with the support of Morocco's central bank (Bank Al Maghreb), which is leading the National Strategy for Financial Inclusion with the Ministry of Economy and Finance (MoEF). Thus, a joint committee was set up with Bank Al Maghreb, the MoEF, the Ministry of National Education and the economic interest group comprised of banking and payment establishments, to coordinate the design and launch of the mobile payment system (ibid.). The plan was to introduce this new payment modality as a pilot to be gradually extended after an evaluation.

Table 4 provides details of the payment modalities via ABB and mobile payments. Their role for *Tayssir* serves to illustrate the contributions of these digital financial tools to improving benefit delivery to rural populations.

The need to reach remote communities was one of the factors driving the launch of mobile payments. Apart from improved service quality, households were expected to benefit from better accessibility and lower transportation costs. During the outreach phase, when beneficiaries were contacted through schools, those living in remote areas could also be contacted through other channels facilitated by the institutions partnering with *Tayssir*. These included ABB, the Ministry of Industry and Trade and the network of local commercial establishments (Former *Tayssir* Directorate 2022).

The outreach campaign also sought to address issues related to beneficiary households' attitude towards the new payment mechanism, which could conceivably pose a more serious hurdle to uptake than geographical barriers themselves (ibid.). The use of mobile payments during the COVID-19 pandemic must have helped in this regard: under the *Tadamon* COVID-19 operation,¹³ the Government of Morocco and the national military reached out to poor households via mobile payment and a variety of payment institutions under ABB. This endeavour relied primarily on SMS and the internet,¹⁴ transferring more than MAD3.8 billion to around 3.5 million people spread across the entire country. *Tadamon* provided an important precedent for the adoption of mobile payments, by helping to raise awareness among households about this novel payment modality for *Tayssir* (ibid.).

It is worth stressing that, despite the introduction of mobile payments, other payment options remain to accommodate those with no access to the necessary technology. These individuals may still receive their payments through the modalities available previously, while also receiving government support to register for mobile payment. This means that there are payment options for households without a telephone, which can receive cash transfers to their bank accounts. Households with a smartphone may also register for the m-wallets to receive mobile payments (ibid.).

Given the inequalities in access to financial services already described, women living in rural areas are especially likely to need additional support or otherwise continue to rely on traditional payment mechanisms (ITU 2022b; World Bank 2022b). As such, the availability of multiple payment options is an important step towards mitigating inequalities, not only between urban and rural areas but also gender- and age-based inequalities within rural areas.

13. To respond to the pandemic, this social protection measure provided cash to informal workers (IPC-IG 2021b).

14. For those who had Medical Assistance Scheme (RAMED) cards, the information from RAMED was used to register, sending the SMS to identify beneficiaries and confirm their payment details. An online platform was set up for those without RAMED cards to register: they filled out a form, provided their national ID numbers and received an SMS notifying them of their eligibility and how to receive their benefit (IPC-IG 2021b).

The mobile payment pilot highlights how the context of digital social protection tools must be considered when introducing a new technology. The pilot of this new payment modality entailed the establishment of an entire digital ecosystem, comprising *Tayssir* beneficiaries (who would receive cash transfers through mobile payments), payment providers and merchants. The logic was that beneficiary households should be able to interact with merchants and payment providers as efficiently as possible. Thus, while these merchants are not necessarily involved in implementing this new payment modality, they play a role in making it useful. To achieve this, the Ministry of Industry and Trade was a key partner, as it mobilised a network of merchants to inform them of the pilot. Tax incentives were offered to entice them to adhere to the mobile payment units (Former Tayssir Directorate 2022).

Finally, setting up the mobile payment system benefited not only from collaboration between ministries but also from the availability of pre-collected data and existing registries, such as the Ministry of Interior’s relatively up-to-date database (ibid.). Still, there were some issues in terms of outdated data in the registries used, especially regarding changing financial institutions or incorrect ID data.

Snapshot: Morocco’s Al Barid Bank and mobile payments

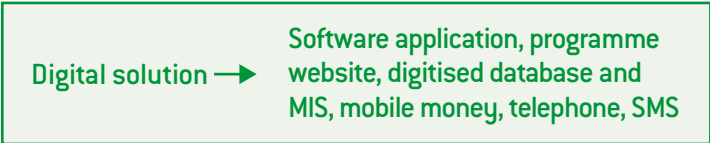
	Delivery
Benefits for implementers	<ul style="list-style-type: none"> • ABB’s footprint could be used to contact beneficiaries. • Mobile payments can better reach beneficiaries in remote areas, decreasing the transportation costs to receive benefits.
Benefits for the rural population	<ul style="list-style-type: none"> • ABB’s coverage reached those living in rural areas. • Thanks to mobile payments, beneficiaries in remote areas do not need to visit bank branches, saving time and money on transportation costs.
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> • Despite ABB’s wide geographical coverage, beneficiaries in remote areas still faced high transportation costs or lacked means of transportation to visit its counters. • Both ABB and mobile payments used data from outdated registries. • Persistent gaps in financial inclusion disproportionately affect women and elderly people.
Current solutions for barriers	<ul style="list-style-type: none"> • Mobile payments were introduced to address the issue of transportation to ABB counters. • Multiple payment modalities are still available.

Source: Authors’ elaboration

Digital innovations at the programme level

The case studies presented next focus on a set of individual social protection programmes, rather than specific digital tools serving multiple programmes simultaneously or a country’s social protection system as a whole. As in the previous section, these case studies will be used to illustrate the contributions of digital technologies to rural social protection along specific steps of the delivery chain. While many have digitalised several steps of social protection delivery and uptake, each country case will focus on no more than two steps, to provide adequate analysis without stretching the scope of this report.

Beneficiary outreach, registration and benefit delivery: Jordan’s Daily Wage Worker Assistance Programme (*Takaful 2*)



The **Daily Wage Worker Assistance Programme**, also known as *Takaful 2*, was an emergency cash transfer implemented during the COVID-19 pandemic. For its implementation, Jordan built on and expanded the pre-

COVID digital infrastructure behind its *Takaful* (*Takmeely* Support) programme. This section uses this experience to highlight the role of digital innovation in beneficiary registration and benefit delivery.

As of 2018, 91 per cent of Jordan's population lived in urban areas (UNDESA 2018). While data disaggregating ICT usage by urban and rural area are not available, the following indicators should nonetheless paint a useful picture of the Jordanian context. Data from the ITU (2022b) show that just under half of Jordan's households had a computer at home in 2017, and only a third had internet access at home. As of 2018, about 66 per cent of the population used the internet, and this number is likely to have increased since then. Considering network coverage, ITU (2022b) data show that all of Jordan's population were covered by at least a 3G mobile phone network by 2020. This suggests that most of the population may be able to access the internet through a mobile phone.

In terms of inclusion in the banking system, a crucial change for rural areas took place in 2019. Until that year, only payroll and savings accounts were available, excluding many social protection beneficiaries from the financial system, as they did not qualify to open such bank accounts. Since 2019, the Basic Bank Accounts initiative requires only the ownership of a national ID number to have an account. While holders of these accounts cannot apply for loans and can only withdraw limited amounts of cash, they are not charged any fees when withdrawing money (NAF 2022). This is likely to have benefited unemployed people, informal workers and those outside the labour force. However, a World Bank report from 2020 stated that women were just half as likely as men to have a financial account or mobile payment provider (World Bank 2020a).

It is within this context that the COVID-19 pandemic occurred. To provide temporary cash transfers to poor and vulnerable households affected by the pandemic, the Government of Jordan launched **Takaful 2**, details of which are summarised in **Table 5**, derived from the *Takaful* programme (World Bank 2020c; 2020d). Seven months after launching *Takaful 2*, another emergency cash transfer—*Takaful 3*—was implemented. While *Takaful 3* is not the focus of this case study, it is notable that some of the digital innovations described below were carried over to this programme (IPC-IG 2021a).

Takaful 2 built on and expanded the existing digital infrastructure of the *Takmeely* Support (*Takaful*) programme. For example, the National Unified Registry (NUR),¹⁵ comprising an electronic database and MIS, had already been operationalised in 2019, when it pooled data from around 15 government institutions during its World Bank-funded first stage of implementation (UNICEF and Jordan Strategy Forum 2020). Prior to the pandemic, the *Takaful* database already included around 1 million households that had applied for this programme and for the Bread Subsidy Compensation (World Bank 2020d). Before 2019, only people with disabilities, unable to work or elderly persons were eligible for social protection. Starting in 2019, the National Aid Fund (NAF) extended social protection to poor households, including unemployed people, and rural and daily workers (NAF 2022). Jordan, therefore, had just expanded coverage before the onset of COVID-19 and was able to expand it further during the pandemic.

Under *Takaful 2*, over 246,000 households were added to the 55,000 previously covered by *Takaful*. Due to the data available from *Takaful*, *Takaful 2* was able to expand coverage to its beneficiaries in just one month. These beneficiaries were also registered in the NAF's system. The process of beneficiary identification experienced fewer errors due to the use of digital technology. As families could fill out forms that were mostly populated by NUR data, they could also correct mistakes, and add or update the personal information captured in the forms. For social protection programmes in rural areas, this helped to reduce fraud by applicants (*ibid.*).

15. The NUR, which had been used as the MIS for the pre-pandemic *Takaful* programme, was also used as the MIS for *Takaful 2*. It automatically updates individuals' data (working status, income from wages and pensions, assets) through its interlinked databases. The data contained in the NUR meet data protection standards set by the Ministry of Digital Communication. Only those providing their national ID numbers could access their personal information, and additional security measures were put in place to protect citizens' data.

Table 5. Jordan: *Takaful 2*

Implementing institutions	National Aid Fund (NAF), Ministry of Planning and International Cooperation, Himmat Watan Fund, World Bank, the World Food Programme, UNICEF, Central Bank of Jordan and wallet service providers
Programme summary	<ul style="list-style-type: none"> • Cash transfers to households of informal workers who were not already covered by the NAF and who lost income due to the pandemic. This included workers such as daily labourers in the construction industry, and workers in the transport, beauty, clothing, hospitality, tourism and entertainment sectors, among others. The following eligibility criteria applied: <ul style="list-style-type: none"> – Household members had to be Jordanians, Jordanian women married to foreign men, or Gazans. – Households could not benefit from another NAF programme. – The household head could not work in the formal sector, in the military or be registered with the Social Security Corporation (SSC). – Other household members could not earn more than JOD100 per capita as formal income per month. – Household per capita income could not exceed JOD493 per month. – Household assets had to be below an established threshold. • The programme reached over 246,000 households. Coverage rates were higher in rural areas, but in absolute numbers there were more urban beneficiaries. • This cash transfer was paid for three months, starting in March 2020: <ul style="list-style-type: none"> – JOD136 per month for households with three or more members – JOD70 per month for those with two members – JOD50 per month for single-member households
Outreach and registration	<ul style="list-style-type: none"> • Beneficiaries were selected from the existing <i>Takaful</i> database. • Community-based outreach was not an option due to the COVID-19 pandemic. • NAF encouraged its branches to contact the vulnerable households they were aware of, to inform them about the programme; as a result, the second most commonly reported reason for knowing about this programme was word of mouth. • An e-service portal on the NAF website was also used for applications. Registration was open for 10 days, and households already registered could use this as an opportunity to update their data. Multiple registration rounds were available. <p>Registration steps:</p> <p>1a. Registration online through the <i>Takaful</i> portal due to the large volume of applicants (different from <i>Takaful 1</i>), which could also be done by downloading an app</p> <p>1b. If unable to register online, households could reach out to an NAF-assigned call centre.</p> <p>2. When citizens registered to receive the benefit, they had to fill out an online form comprising questions related to the eligibility criteria and the indicators used for proxy means-testing. Because it was linked to the National Unified Registry (NUR), the form automatically filled in certain answers, so individuals usually just had to answer about one fifth of the questions. The NUR contained information from more than 100 official bodies (including national ID and family registries) and databases from the Unified Government Targeting System (UGTS). The UGTS is a fully automated targeting system.</p>
Enrolment	<ol style="list-style-type: none"> 1. The UGTS ranked the living conditions of households and individuals based on more than 57 socio-economic indicators; the information was entered by the citizens, by filling out the online form mentioned above. During this ranking, households living in rural and remote poor districts obtained higher scores and were thus prioritised over those living in urban areas. 2. Once households were ranked based on poverty and vulnerability, the NAF normally conducted a field visit for a final confirmation of households' living conditions. During the pandemic, this was replaced by virtual calls through an application created by the NAF for this specific purpose, called NAF-Visit, which could be downloaded from Google Play. 3. After the virtual consultations, the NAF assessed the information gathered about the applicants and confirmed eligibility via an SMS message.
Delivery	<p>Due to lockdowns, the only payment mechanisms available for <i>Takaful 2</i> were e-wallets. The households that were notified by the NAF about their eligibility also received guidance on how they could receive the benefit:</p> <ul style="list-style-type: none"> • People could download an app and register for the e-wallet using their national ID number. • Beneficiaries who did not already have e-wallets were referred to mobile payment providers to open e-wallets online. • Those without smartphones or could not open online accounts were supported by the NAF, which opened e-wallets for them with assistance from payment service providers and call centres. Note that the e-wallets do not require smartphone ownership. • Those who could not open a bank account would attend awareness-raising sessions regarding potential solutions, including e-wallets. • The NAF processed payments through its MIS. • Benefit recipients were household heads.
Grievance and redressal	<ul style="list-style-type: none"> • Individuals could submit complaints through the <i>Takaful</i> website. They could also call a call centre through a general hotline or complain to the NAF in person.

Source: NAF (2022; 2020a; 2020b; n.d.a; n.d.b); Jordan Times (2020); UNICEF and Jordan Strategy Forum (2020); World Bank (2020d; 2020c); (IPC-IG 2021a).

During the COVID-19 pandemic, *Takaful 2* pushed for further digitalisation, especially of registration, enrolment and benefit delivery. For the first two steps, both the application for this benefit and the home visits to confirm households' living conditions were conducted remotely. The digitalisation of home visits for *Takaful 2* saved the NAF transportation time and costs, allowing the organisation to conduct its work despite the COVID-19 safety measures. These benefits must have contributed to the NAF's decision to maintain the virtual field visits for the implementation of *Takaful 3* (ibid.).

The NAF leadership seems to have been aware of potential exclusion errors in rural and remote areas due to a lack of internet coverage or digital literacy. In those cases, the NAF tried to reach these individuals through information sessions by phone, facilitated by the Nacional Call Centre, lasting between one and five minutes (ibid.). These calls had the goal of supporting potential beneficiaries in applying for *Takaful 2* and would sometimes culminate in NAF staff finalising applications on their behalf with them over the phone. However, most information sessions were conducted online rather than over the phone (ibid.). As a final effort to ensure people did not miss the opportunity to apply for *Takaful 2*, the NAF offered multiple rounds of registration and even called e-wallet providers when necessary to support individuals in acquiring them (ibid.). Now that lockdowns in Jordan are over, applicants can apply for their benefits in person again—an option that was not available during the implementation of *Takaful 2* because of the need to abide by social distancing measures (ibid.).

In terms of benefit delivery, e-wallets were useful during the lockdowns, when beneficiaries were unable to visit post offices or banks (ibid.). The abovementioned information sessions also supported beneficiaries with how to register for the e-wallets, with the NAF reaching out to beneficiaries through SMS, sending the links to the information sessions. These were conducted through WebEx, with support from the World Food Programme, the World Bank and the Central Bank. At times, the NAF even provided e-wallets on beneficiaries' behalf, if beneficiaries gave prior consent (ibid.). Thanks to the e-wallets, *Takaful 2* was able to transfer funds to almost 250,000 families. Reportedly, payment through e-wallets is more convenient than visiting a bank. Their use allegedly also reduced the risk of fraud compared to when beneficiaries received their funds through the Jordanian Post (ibid.).

While rural areas are reportedly well covered by ATMs, even non-social protection services such as water bills are now digital and must be paid via mobile phones or apps; to this end, individuals may use e-wallets from any fin-tech company of their choosing.¹⁶ Given the low rates of internet use reported at the beginning of this case study, this raises the question of whether beneficiaries in rural areas would be excluded from these services (ibid.).

To address this problem, it is notable that the e-wallets do not require smartphones to work (World Bank 2020d). Moreover, the NAF, in collaboration with the Central Bank and fin-tech companies, has been trying to raise awareness about e-wallets, and individuals can borrow phones from family members (NAF 2022), although this only helps those who have access to the necessary technology. The NAF also has contracts with e-wallet providers so that there is at least one agent for every 100 beneficiaries, with the aim of ensuring that those living in rural areas are covered (ibid.).

One final consideration, though, is that despite the efforts to make e-wallets widely accessible, their impact on women's financial inclusion and safety may not be straightforward. Women's financial inclusion was low prior to the pandemic, and *Takaful 2* benefits were delivered to household heads. As such, efforts to make e-wallets more inclusive would be limited by the extent to which programme design takes account of the gender dynamics and disparities within households.

16. According to one key informant interviewed for this paper, there are around seven or eight main e-wallet providers in Jordan, three of which belong to telecommunications companies that are also telephone providers. Thus, e-wallets pertaining to these companies can be linked to mobile numbers [NAF 2022].

Snapshot: Jordan's *Takaful* 2

	Outreach and registration	Enrolment	Delivery	Grievance and redressal
Benefits for implementers	<ul style="list-style-type: none"> Virtual forms linked to the NUR reduced the amount of incorrect data 	<ul style="list-style-type: none"> Virtual NAF visits saved transportation time and costs when confirming households' living conditions The <i>Takaful</i> database enabled rapid coverage expansion 		
Benefits for the rural population	<ul style="list-style-type: none"> NUR data linked to virtual forms sped up the registration process 		<ul style="list-style-type: none"> Receiving payments through e-wallets reduces the cost of bank visits (in terms of time and money) 	<ul style="list-style-type: none"> Several ways to access GRMs, namely the <i>Takaful</i> website, the NAF call centre hotline or in person
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> Exclusion of those without access to ICTs and the internet and lacking digital literacy, especially in remote areas 		<ul style="list-style-type: none"> Exclusion of those without access to ICTs and the internet and lacking digital literacy 	
Current solutions for barriers	<ul style="list-style-type: none"> Information sessions via the phone or online NAF staff could finalise benefit registration on applicants' behalf Registration in person possible again post-pandemic Multiple rounds of registration possible 		<ul style="list-style-type: none"> Virtual information sessions about e-wallets Currently, contracts with e-wallet agents to expand their reach Smartphone ownership not required to open/operate an e-wallet (borrowing possible) NAF could get e-wallets on beneficiaries' behalf 	

Source: Authors' elaboration.

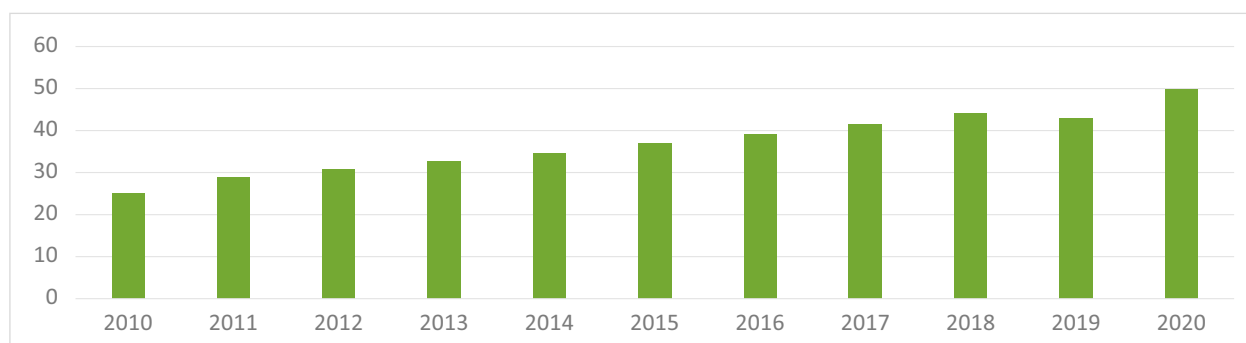
Beneficiary outreach, registration and benefit delivery: The Philippines' Social Amelioration Programme

Digital solution → Online portal, software applications, social media, programme database, mobile money, cash cards, telephone, SMS

The Social Amelioration Programme (SAP) in the Philippines serves as a case study of the digitalisation of the outreach and registration process and of benefit delivery on a large scale (Cho 2021).

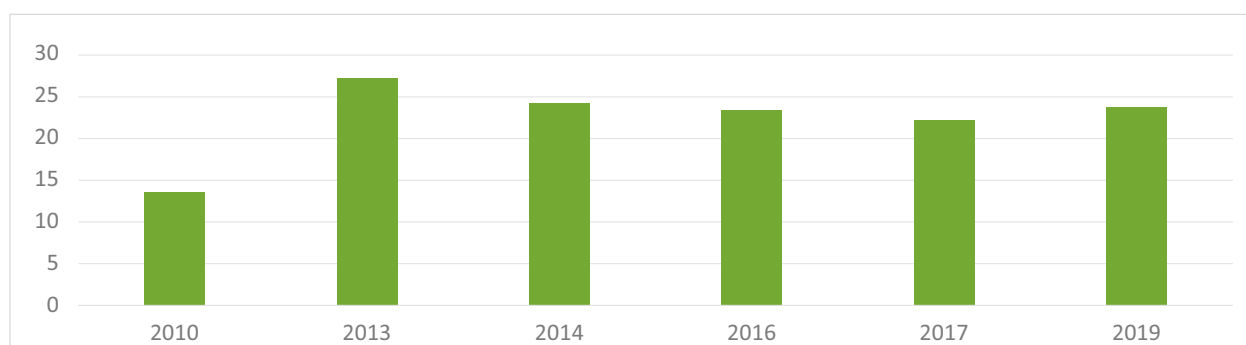
In 2018, more than half of the Philippines' population lived in rural areas (UNDESA 2018). In 2020, 99 per cent of the Filipino population were covered by a mobile phone network, with at least 80 per cent covered by 4G (ITU 2022b). As indicated in Figure 9, the number of individuals using the internet has increased gradually over the last decade, with almost 50 per cent of the population doing so in 2020 (ibid.). The majority of users are 16 years and above (Statista 2022). However, only 18 per cent of households had internet access at home, and just 24 per cent had a computer at home in 2019 (see Figure 10) (ITU 2022b). While data disaggregated by rural and urban area were not available at the point of writing, a survey conducted in 2021 revealed that 84 per cent of the adult population had internet access in the National Capital Region, followed by the rest of Luzon with 65 per cent (Statista 2022).

Figure 9. Philippines: Individuals using the internet (%), 2010–2020



Source: ITU (2022b).

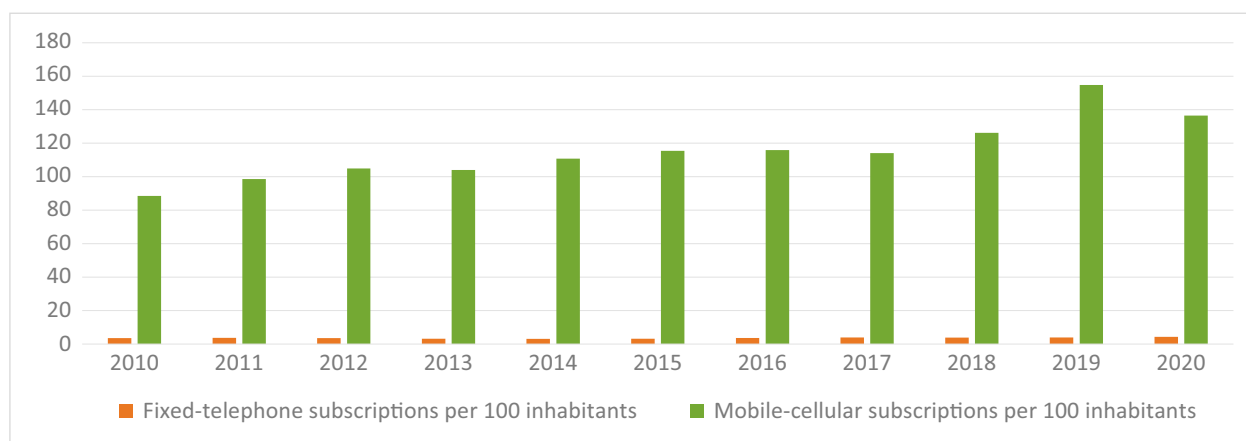
Figure 10. Philippines: Households with a computer at home (%), 2010–2019



Source: ITU (2022b).

Mobile phones are the most commonly and widely used digital tool in the Philippines (4Ps-NPMO 2022). In 2020, there were 137 mobile and telephone subscriptions per 100 inhabitants, indicating that several people must have access to more than one phone (see Figure 11) (ITU 2022b). This technology is crucial to Filipinos, since it gives them access to information as well as communication: 73 per cent of people used their mobile phone to access the internet in 2020 (Statista 2022).

Figure 11. Philippines: Telephone subscriptions per 100 inhabitants, 2010–2020



Source: ITU (2022b).

Given the level of ICT use in the Philippines, digital and non-digital tools were used to provide social assistance during the COVID-19 pandemic. This is exemplified by the **SAP**, which will be analysed in this section and whose key aspects are summarised in Table 6. Note that the existing digital infrastructure of the *Pantawid Pamilyang Pilipino Program (4Ps)*¹⁷ was a key feature upon which the SAP was built, so this section also examines some aspects of this national flagship social protection programme when relevant.

The Philippines' experience with implementing the SAP demonstrates several advantages and disadvantages of using digital technologies in delivering shock-responsive social protection, especially during beneficiary registration and payment delivery. First, SAP beneficiaries could skip a significant portion of the registration process, and millions of them could be quickly identified, including those located in rural areas. This was possible due to the availability of an existing database to identify poor and vulnerable households established prior to the pandemic. One of the most widely used digital tools for the SAP was the *Pantawid Pamilya Information System (PPIS)*, which already contained beneficiary data from the 4Ps (see Table 6) (4Ps-NPMO 2022). Nonetheless, keeping the PPIS up to date proved challenging. The transfer of residence of beneficiaries, for example, caused regions experiencing net emigration flows to be over-targeted, while the regions experiencing net immigration flows were under-targeted (DSWD 2022b).

Table 6. The Philippines' Social Amelioration Programme (SAP)

Implementing institutions	<ul style="list-style-type: none"> • Department of Social Welfare and Development (DSWD) • To reach 4Ps beneficiaries: Additional assistance was provided by the Department of Budget and Management (executive body under the Office of the President) and the Department of Interior and Local Government (DILG), along with the departments of labour and employment, trade and industry, agriculture and finance, as well as the armed forces and the national police. • To reach non-4Ps beneficiaries during the COVID-19 pandemic: Additional assistance was received from the DILG. • Financial service providers and local government units (LGUs) were key implementing partners for the DSWD in reaching both 4Ps and non-4Ps beneficiaries.
Programme summary	<ul style="list-style-type: none"> • Cash transfers paid monthly to the worst-affected low-income families with members working in the informal sector and/or in situations of vulnerability, and those in areas declared areas of enhanced community quarantine, including beneficiaries of the 4Ps and rice subsidies.¹⁸ The eligibility criteria were as follows: <ul style="list-style-type: none"> – 4Ps beneficiaries: poor and near-poor households (based on the national poverty line identified through the National Household Targeting System called <i>Listahanan</i>) with children under 18 years of age and/or pregnant women; farmers, fisherfolk, and homeless and indigenous people – Non-4Ps beneficiaries: low-income families: (i) residing in areas under lockdown; (ii) not supported through other subsidies; and (iii) undocumented overseas Filipino workers who recently returned – Not eligible: households including officials and staff of government institutions, salaried private-sector workers, retired pensioners and those deemed affluent • Beneficiaries received between PHP5,000 and PHP8,000, depending on the regional minimum wages. The SAP also covered the beneficiaries of both rice subsidies and the 4Ps. <ul style="list-style-type: none"> – 4Ps beneficiaries received the SAP benefit on top of 4Ps support: an additional PHP3,650–6,650 from the SAP. • The programme was approved in March 2020 and was implemented for two months (April and May 2020); additional financing became available in July 2020, and the programme finally closed in December 2021. • The SAP aimed to cover 18 million poor households, accounting for 70 per cent of the total population. Around 13.3 million families who had not previously benefited from the 4Ps received SAP benefits.



17. The 4Ps is the Philippines' flagship conditional cash transfer programme. Its aim is to break the intergenerational cycle of poverty by giving incentives to households to invest in children's health and education (socialprotection.org 2022b).

18. The rice subsidy programme consists of two components: rice price support and a procurement buffer scheme. Its objective is to ensure food security and stabilise the price and supply of rice and maize (socialprotection.org n.d.).

<p>Outreach and registration</p>	<ul style="list-style-type: none"> Neither 4Ps nor non-4Ps beneficiaries had to apply for this benefit; while 4Ps beneficiaries were enrolled automatically,¹⁹ the registration of non-4Ps beneficiaries was done by the <i>barangays</i>, the smallest local government unit in the Philippines: <ol style="list-style-type: none"> <i>Barangays</i> compiled a list of eligible beneficiaries based on the SAP eligibility criteria; to do this, they could refer to a list of poor households provided by the DSWD. <i>Barangay</i> staff visited eligible households to provide them with registration forms called Social Amelioration Cards (SACs), which had to be manually completed by household heads. The completed SAC forms had to be submitted by the <i>barangay</i> to the City or Municipal Social Welfare Development Office, where they were signed and entered into the SAC uploading system. Non-4Ps beneficiaries could also self-register remotely through the ReliefAgad mobile app that was launched by the DSWD and the Department of Information and Communications Technology. Self-registration details would then be cross-checked before approval.
<p>Enrolment</p>	<ul style="list-style-type: none"> <i>Listahanan</i>, a data management system that identifies poor people and where they are located across the country, was used as identification mechanism for the SAP. LGUs were responsible for identification, eligibility and family profiling of beneficiaries, subject to review and final generation of lists by the DSWD, according to the following process: <p>4Ps beneficiaries automatically became SAP beneficiaries (see Box 4 for the eligibility assessment process preceding registration into the 4Ps), whereas non-4Ps beneficiaries were profiled by <i>barangays</i> using an SAC:</p> <ol style="list-style-type: none"> The city or municipality validated the data received by the <i>barangays</i> before returning them to the DSWD central office. At DSWD central office, the data and supporting documents were reviewed to avoid duplication. The DSWD central office generated beneficiary lists for LGUs to provide benefits with support from DSWD field offices. The SAP followed a principle of paying first and validating eligibility later, to avoid delaying the emergency aid. If the DSWD found that a beneficiary was not eligible, an investigation was conducted, and the beneficiary would not receive the second tranche of the cash transfer. Eligibility was assessed at the household level, which meant that households separated due to travel restrictions were still only eligible for one payment. The process of deduplication was delegated to field offices and entailed cross-checking lists from DSWD databases and the lists from the government agencies involved in implementing the SAP.
<p>Delivery</p>	<ul style="list-style-type: none"> Direct cash payments: LGUs delivering benefits to non-4Ps beneficiaries would also conduct home visits and adhere to other local government strategies for benefit delivery. For this, beneficiaries' IDs were checked by agents at <i>barangays</i>. If IDs were not available, the beneficiary could receive proof of eligibility from the <i>barangay</i>, certifying their residence in the <i>barangay's</i> jurisdiction. Payments at distribution points: Beneficiaries had to attend appointments arranged for them by the designated council or appointed official from the <i>barangay</i>. Cash cards and non-cash cards: 4Ps beneficiaries could receive the benefit through their Land Bank of the Philippines cash cards at ATMs or post office outlets. For those not owning a cash card, a Special Disbursing Officer distributed their benefit in the identified area in coordination with the LGUs. Transfers through national government agencies Transfers through financial service providers In each eligible household, only one person received the benefit, regardless of how many members were eligible. <p>From the government's perspective, the process of funds disbursement differed slightly based on whether the beneficiaries were already enrolled or not in the 4Ps cash transfer programme.</p>
<p>Grievance and redressal</p>	<ul style="list-style-type: none"> Complaints could be submitted to <i>barangay</i> offices. Those who believed they were eligible but did not receive the SAP benefit could make a claim at a provincial, city or municipal Social Welfare Development Office within three days of benefit distribution and request to be included on the beneficiary list. Complainants could also call the DSWD through its hotline or send an email or a text message by mobile phone or even a chat message on social media.

Source: Cudis (2020a); UNICEF (2020); 4Ps-NPMO (2022); Petry (2021); DSWD (2020; 2022a; n.d.); Merez (2020); Cho (2021); Official Gazette (n.d.); ICTMS/DSWD (2022); IPC-IG (2021b); Information and Communications Technology Management Service (2022).

19. The list of 4Ps beneficiaries was generated through the Pantawid Pamilya Information System (PPIS), the 4Ps database that contains beneficiary data that can be accessed by programme managers up to the provincial level and is updated regularly.

The cash cards were another existing digital tool that supported SAP implementation. They functioned as ATM cards and were used to deliver the transfers. Europay, MasterCard and Visa cards issued by the Land Bank of the Philippines already existed for the 4Ps conditional cash transfers prior to the pandemic (4Ps-NPMO 2022; Information and Communications Technology Management Service 2022). Rural banks, on the other hand, were not engaged in the provision of the SAP. Due to the lack of an existing national ID database, poor people living in rural areas in particular were unable to open bank accounts (Information and Communications Technology Management Service 2022). Because the lack of a national ID database may have hindered SAP implementation, the government is now building on the lessons learned from the pandemic and is working on the establishment of a national ID system, the Philippines Identification System (or PhilSys), for which low-income households will be prioritised (ibid.).

A digital tool that was launched during the pandemic and supported the SAP's responsiveness is the ReliefAgad mobile app. This application facilitated registration by allowing beneficiaries to self-register and, if accepted, speed up the process necessary for receiving payments by sending their Social Amelioration Card (SAC) details to their Local Government Unit (LGU) and to the Department of Social Welfare and Development (DSWD) through the app. While the app did not facilitate the receipt of payments, it did help the DSWD expedite the collection of SAC details and provided data that the DSWD could use to disburse cash assistance more quickly. ReliefAgad made use of crowdsourcing, manual encoding by LGUs, and leveraging on the part of the population with ICT skills to ensure the timely provision of benefits (Information and Communications Technology Management Service 2022; Cudis 2020a). Nonetheless, the app was not mandatory for registration and payment delivery. Those who did not have access to mobile phones or resided in areas affected by poor connectivity could still receive cash transfers through the LGUs. This suggests that the app might not have been widely used by poor people in remote rural areas, because such locations generally have low connectivity (DSWD n.d.).

Box 4. 4Ps' eligibility assessment process

- A database of poor households (part of the Listahanan data management system) available to national government agencies and other social protection stakeholders is used as the basis for identifying potential beneficiaries.
- The DSWD leads the process of identifying poor households through the National Household Targeting Office (NHTO). National Household Targeting Sections (NHTSs) have also been established in all DSWD field offices to better monitor operations on the ground.
- The NHTSs hire, train and supervise the field staff, which include area coordinators, area supervisors, enumerators, encoders and verifiers. To avoid any influence on the data collected from households, field staff who play specific roles in the assessment are not assigned to areas where they live. Due to security issues and poor connectivity, field staff work with pen and paper rather than tablets.
- The NHTO consults regularly with its National Technical Advisory Group. Data collection entails home visits to gather basic household information using the Household Assessment Form (HAF).
- Using proxy means-testing, the information gathered from the HAF is used to estimate the household's per capita income. The estimated incomes are then compared to the official provincial poverty threshold to identify households living below (poor) or above (non-poor) those thresholds.
- The encoders then use an online data entry application to enter the information from the HAF directly into the database. Before the HAF is approved for proxy means test processing, the information collected is checked for consistency. After estimating income, households are classified as poor or non-poor using the official provincial poverty threshold (DSWD 2022a; 4Ps-NPMO 2022).

Source: Authors' elaboration.

The partnership with financial service providers was crucial for facilitating digital payments for the SAP, mainly for the second tranche of payments (Cruz et al. 2022). Given the high demand for this transfer, and to accelerate delivery, digital payments took advantage of the high mobile phone penetration in the Philippines and were used as the preferred payment modality for this emergency programme. There was, reportedly, a high level of satisfaction among beneficiaries with the SAP digital transfers (DSWD 2022b). In addition, beneficiaries were provided with financial accounts, which contributes to their financial inclusion. Although beneficiaries were not always aware that they did not have to queue to receive their benefits, collaboration with financial service providers during the second tranche of the SAP reduced typical waiting times in queues from around seven hours to one hour (Cruz et al. 2022).

One further example of the way in which the SAP tried to reach poor people in rural areas is how it conducted its outreach. A combination of Google Workspace, Zoom, Facebook and other digital communication platforms was used to communicate between coordinators, as well as with beneficiaries. For those who could not receive payments digitally, communication through Facebook groups, text messages and phone calls served to inform them about the cash distribution points, which were most often located in city halls or schools. For those living in remote areas with poor connectivity, the city municipality went to every home to tell residents about payment venues. Non-internet ICTs, such as the radio and television, were also used to inform beneficiaries about delivery (4Ps-NPMO 2022). This highlights the importance of combining different technologies to reach rural populations as effectively as possible.

Snapshot: The Philippines' Social Amelioration Programme

	Outreach and registration	Enrolment	Delivery	Grievance and redressal
Benefits for implementers	<ul style="list-style-type: none"> Social media could be used for outreach The ReliefAgad mobile app allowed individuals to self-register 	<ul style="list-style-type: none"> The <i>Pantawid Pamilya</i> Information System (PPIS) enabled the identification of beneficiaries 	<ul style="list-style-type: none"> ReliefAgad quickly provided the necessary data for benefit delivery ReliefAgad and Social Amelioration Cards (SACs) enabled automatic payments 	
Benefits for the rural population	<ul style="list-style-type: none"> The mix of social media platforms kept beneficiaries informed and enabled them to share information 		<ul style="list-style-type: none"> More convenient delivery through financial service providers 	<ul style="list-style-type: none"> GRMs available through multiple channels, such as telephone hotlines, email and SMS
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> Social media may not reach those living in areas with low connectivity or who lack digital literacy ReliefAgad excluded those who did not have or could not use mobile phones 	<ul style="list-style-type: none"> Lack of regular updating of the PPIS led to targeting errors 	<ul style="list-style-type: none"> The rural poor tend to lack IDs and are therefore less likely to have bank accounts 	<ul style="list-style-type: none"> Even GRM channels that rely on cheap technology can exclude those without ICT access or who lack digital literacy
Current solutions for barriers	<ul style="list-style-type: none"> ReliefAgad was not a mandatory registration tool, so those excluded from it had other options for registration 			
	<ul style="list-style-type: none"> Current efforts to establish a national ID system 			

Source: Authors' elaboration.

Despite the efforts to avoid duplication, the DSWD uncovered more than 51,000 duplicate beneficiaries, which underlines the importance of having a strict validation process (Cudis 2020b). To check for duplication, the DSWD used data on full names and birthdates provided by the LGUs, and multiple entries for these variables were deemed to be duplicates (DSWD 2022b). It is important, nonetheless, to note that the decision to disburse the transfer before checking and validating eligibility was a conscious design choice, given the emergency context of the pandemic.

Overall, the Philippines' SAP experience highlights how digital technologies can enhance the uptake and delivery of social protection among rural populations in times of an emergency. At the same time, the case shows that a mix of internet- and non-internet-based digital technologies and non-digital tools were used to ensure swift beneficiary registration, enrolment and payment. Alongside the existing digital infrastructure furnished by the 4Ps programme, local government structures were key to identifying beneficiaries and implementing SAP payments in a timely manner.

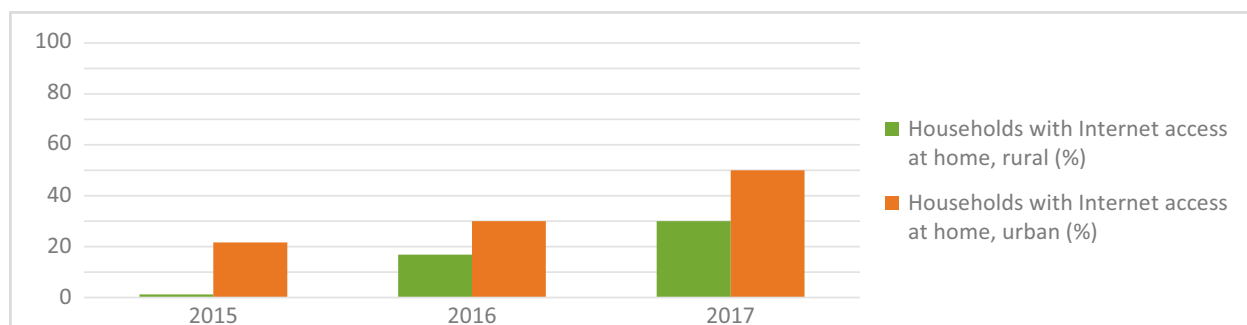
Beneficiary enrolment and benefit delivery: Cambodia's COVID-19 Cash Transfer Programme

Digital solution → Tablets that work offline, integrated database, software applications, mobile money

Cambodia's emergency **COVID-19 Cash Transfer Programme** (COVID-19 CT) offers lessons regarding the use of digital technologies for enrolment and benefit delivery. While several steps of programme uptake and delivery were digital, we will focus on the use of the ID-Poor database and Wing e-payment provider when examining the role of digitalisation for rural social protection beneficiaries.

Only 23.4 percent of Cambodia's population lived in urban areas in 2018 (UNDESA 2018). Figure 12 shows that rural households lagged behind their urban counterparts in terms of internet access as recently as 2017. While more recent data on rural and urban internet access are not available, a projection of the continuously increasing trend witnessed over recent years suggests that it has improved for the general population nationally. Cambodia's gender internet gap seems to be small: as of 2018, 62 per cent of both men and women owned a mobile phone (ITU 2022b).

Figure 12. Cambodia: Households with internet access at home by urban/rural area (%), 2015–2017

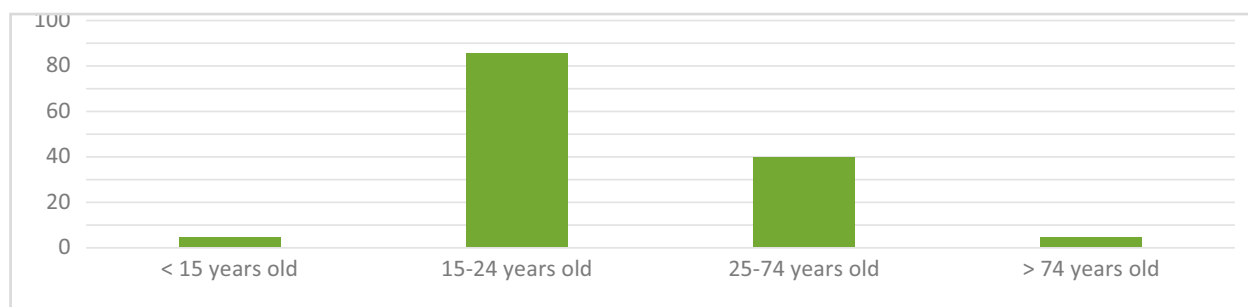


Source: ITU (2022b).

In contrast, data from 2016 reveal the presence of large inequalities in internet use across age groups (Figure 13). Internet use is high among Cambodians aged 15–24 years, then drops to 40 per cent among those aged 25–74 years, who represent about 70 per cent of the country's population (ITU 2022b; Ministry of Planning 2019).

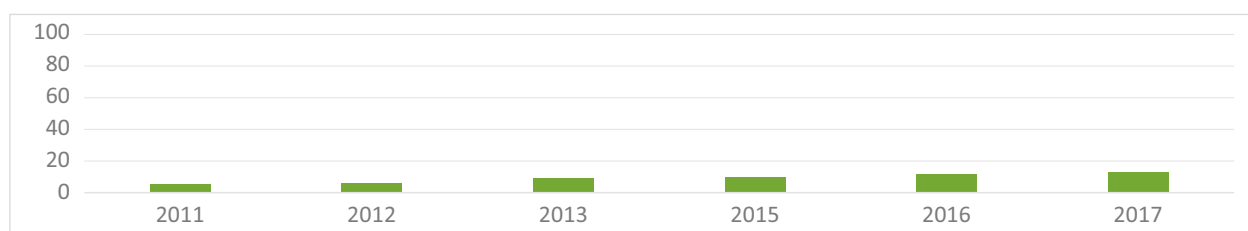
Data on access to mobile phones and computers are not disaggregated by urban and rural area. While access to computers is quite low in Cambodia (see Figure 14), the number of mobile phone subscriptions is quite high, although some people may have multiple phones (see Figure 15). Data on access to electricity suggest that those living in rural areas are likely to be at a disadvantage in their ability to use ICTs compared to urban dwellers (see Figure 16). Even if they had access to the necessary hardware, still almost one fifth of the rural population did not have access to electricity in 2020 (World Bank 2022f).

Figure 13. Cambodia: Internet users by age group (%), 2016



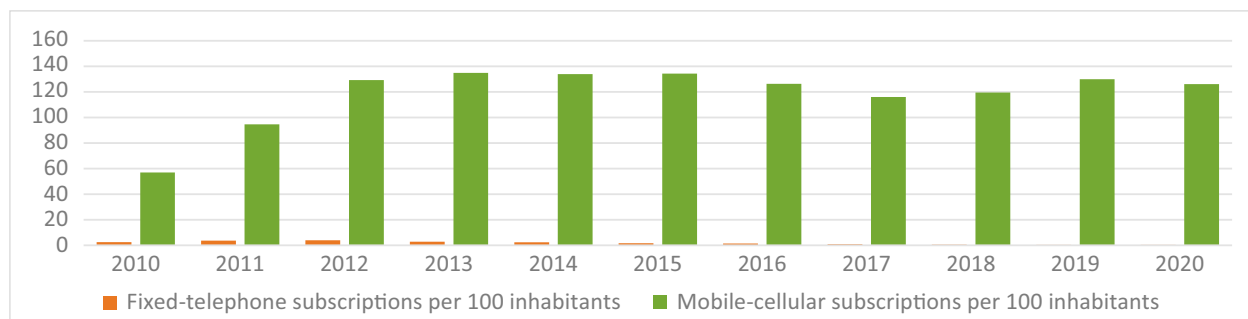
Source: ITU (2022b).

Figure 14. Cambodia: Households with a computer at home (%), 2011–2017



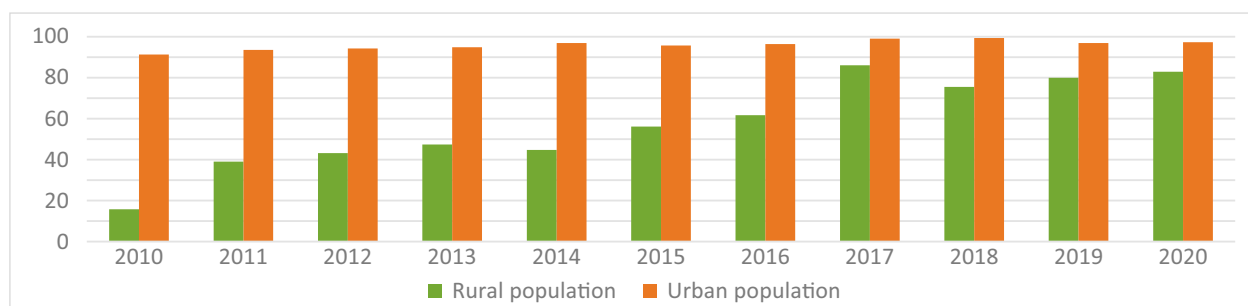
Source: ITU (2022b).

Figure 15. Cambodia: Telephone subscriptions per 100 inhabitants, 2010–2020



Source: ITU (2022b).

Figure 16. Cambodia: Access to electricity by urban/rural population (%), 2010–2020



Source: World Bank (2022f).

Table 7. Cambodia: COVID-19 Cash Transfer Programme

<p>Implementing institutions</p>	<ul style="list-style-type: none"> Ministry of Social Affairs, Veterans and Youth Rehabilitation (MoSVY), Ministry of Planning (MoP) European Union, Department of Foreign Affairs and Trade, Swedish International Development Cooperation Agency, Deutsche Gesellschaft für Internationale Zusammenarbeit, UNICEF, UNDP and the World Food Programme
<p>Programme summary</p>	<ul style="list-style-type: none"> Emergency cash transfer to poor and vulnerable households in urban and rural areas (including those whose data were already included in the ID-Poor database, as well as additional households) The COVID-19 CT programme covered a total of 697,000 households (around 3 million people, or 17.7 per cent of Cambodia's population), of which around 560,000 were already Equity Card holders, and around 137,000 were added during the pandemic. The transfer was paid monthly from June 2020 and is still ongoing. It is expected to continue for another year, tapering off slowly.
<p>Outreach and registration</p>	<p>Beneficiaries already in the ID-Poor database:</p> <ul style="list-style-type: none"> Because they were already in the ID-Poor database, they had Equity Cards, which they could use to prove their registration and poverty level; these cards contain an ID code for the household, a photo of its members and its poverty ranking. Prospective beneficiaries had to show this card to the commune for verification and to be enrolled in the COVID-19 CT programme. <p>New beneficiaries:</p> <ul style="list-style-type: none"> OD-ID-Poor was introduced to allow for quick identification of new beneficiaries, who could approach commune officials to request support from the programme. These commune officials were trained virtually, and, when necessary, interviews with households were conducted by phone.
<p>Enrolment</p>	<p>Targeting occurred through the ID-Poor database: eligibility assessment is community-based through trained commune officials, and poverty is assessed through proxy means-testing. After applying the proxy means test, poor households can be classified as Poor Level 1 (very poor) or Poor Level 2 (poor), based on a score derived from their answers during the interview. Households are eligible if they are classified as Poor Levels 1 or 2.</p> <p>The ID-Poor database was also used during eligibility verification. Once identified through ID-Poor, eligible households were enrolled through the MoSVY's MIS already in place for the existing cash transfer for pregnant women and infants and upgraded to meet the needs of the Covid-19 CT programme.</p> <p>Beneficiaries already in the ID-Poor database:</p> <ul style="list-style-type: none"> During the pandemic, after enrolment for the COVID-19 CT programme at the commune level, the enrolment data were digitally transmitted to the MoSVY's MIS for final verification by the MoSVY and benefit calculation. The benefit amount was calculated through this MIS, and the resulting data were transferred digitally to the e-payment provider, Wing. Wing confirmed the data and forwarded benefit payment numbers to its network of 10,000 agents spread across Cambodia. This would trigger the disbursement of cash to the beneficiaries. <p>New beneficiaries:</p> <ul style="list-style-type: none"> Upon approaching commune officials, households were immediately assessed and registered into the ID-Poor database, rather than following the pre-pandemic ID-Poor registration process. Using the application programme interfaces established between the ID-Poor database and the MoSVY MIS, communes were able to automatically verify the ID-Poor status of new beneficiaries identified under OD-ID at the point of enrolment in the COVID-19 CT programme. Once validated, the data gathered by commune officials were entered into the ID-Poor database. Eligible households were given an Equity Card as proof of eligibility within weeks and could then use it to request the COVID-19 CT immediately, as their data would already appear in the system. The application programme interface established between the ID-Poor database and the MoSVY MIS ensured rapid two-way exchange of data for targeting, verification and payment.
<p>Delivery</p>	<ul style="list-style-type: none"> The cash was transferred directly to beneficiaries' bank accounts and could be withdrawn through Wing's network of agents. These are not bank accounts per se, but rather a temporary mobile wallet account under Wing, created based on beneficiaries' data from the MoP/MoSVY. The recipient presents themselves to the Wing agent, and, upon successful verification that the person is eligible, cash is given out. Benefit recipients were the household heads.

Source: Chanvirak (2020); deRiel (2017); IPC-IG (2021b); Government of Cambodia (n.d.a; n.d.b); GS-NSPC (2022); Malli and Doetinchem (2016); Ministry of Planning (2012); Narin and Khmer (2020); OECD (2019b); Office of the Council of Ministers (2020); Pagnathun, Cerceau, and deRiel (2021); UNICEF Cambodia (2020); Sreylin (2022).

It was against this background that Cambodia started implementing the COVID-19 CT programme in June 2020. Its aim was to provide income support to poor and vulnerable people affected by lockdowns (UNICEF Cambodia 2022). Cambodia's experience with the programme highlights the crucial role played by existing digital infrastructure in allowing social protection systems to adapt and expand in response to a shock. Table 7 lists several digital tools already used in Cambodia prior to the pandemic along multiple steps of the social protection delivery chain.

The emergency cash transfer programme relied on the ID-Poor database for targeting, as several development programmes do (136 in 2015) (de Riel 2017). To accelerate beneficiary identification during the pandemic, On-demand ID-Poor (OD-ID-Poor) was introduced, allowing for a quicker registration process. The use of the Wing e-payment provider was another key feature of the programme, making benefit payments easier in response to the pandemic.

The use of the ID-Poor database for the initial identification of COVID-19 CT programme beneficiaries was key for the inclusion of poor and vulnerable people in rural areas, while the introduction of OD-ID-Poor was an innovation that supported the registration of new beneficiaries during the pandemic. Those already in the ID-Poor database could quickly prove that they were poor when applying for the COVID-19 CT by showing their Equity Card (see Table 7). Further, the government could rely on the ability of village chiefs to know who the poor people were in their respective villages and take charge of identifying them and entering their data online (GS-NSPC 2022). After all, prior to the pandemic, beneficiaries were registered monthly in the ID-Poor database by trained commune officials, who drafted a list of the poor people in their commune, which was then validated by the community (Pagnathun, Cerceau, and deRiel 2021). Not only were commune officials already trained to conduct the household interviews necessary for eligibility assessment, they were also already using tablets for this exercise (GS-NSPC 2022).

Many commune officials were reportedly able to receive the usual capacity-building training for poverty assessments via digital platforms such as Zoom and Google Meets. They were also experienced in using tablets for ID-Poor identification, beneficiary registration and eligibility verification, as they had already used them for the Ministry of Social Affairs, Veterans and Youth Rehabilitation's pre-COVID-19 conditional cash transfer programme for pregnant women and children under 2 years (GS-NSPC 2022; UNICEF Cambodia 2022). As village chiefs were organised into working groups to conduct the household interviews, they could receive support from these working groups if they encountered any challenges. This highlights the importance of non-digital community structures in supporting the uptake of ICTs.

However, the usefulness of these tools depended largely on the quality of the internet connection in the communes, although offline options were also available (GS-NSPC 2022). Especially in remote rural areas, long distances between communes also resulted in high transportation costs during beneficiary identification for the COVID-19 CT, and the corresponding need for additional resources to enable interview teams to access villages. An additional issue was that some areas lacked access to the necessary hardware and mobile internet altogether, which posed challenges to beneficiary identification and programme implementation (Nuppun Research and Consulting Co. Ltd. 2021). This was sometimes compounded by the limited digital literacy of senior commune council members, especially those in remote communes, who sometimes had to rely on younger and more junior commune clerks for assistance (ibid.).

In terms of benefit delivery, while there are a large number of Wing agents spread across Cambodia, paying cash swiftly during the lockdowns was beset with challenges, especially in rural areas. The Wing system faced issues when many beneficiaries tried to withdraw cash at the same time; since its agents had a cap on the amount they could withdraw at any one time, they could not always provide the cash that people were requesting. This resulted in long waiting times, with many households having to return the next day for their cash (ibid.). Payment in rural areas was also hampered by slow internet connection, meaning that transactions through Wing typically took longer than in urban areas (ibid.).

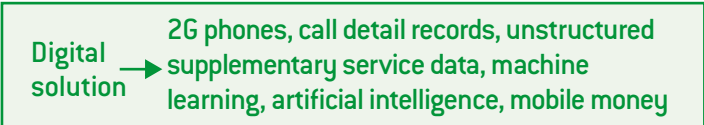
The ability of Cambodia’s social protection system to build on its existing digital infrastructure during the COVID-19 crisis points to the role of digitalisation in enhancing shock-responsiveness. Not only was it crucial that digital tools were already available to be used during the emergency response, but the individuals working with those tools already had some experience using them, which was useful at the onset of the pandemic.

Snapshot: Cambodia’s COVID-19 Cash Transfer programme

	Outreach and registration	Enrolment	Delivery
Benefits for implementers	<ul style="list-style-type: none"> The ID-Poor database was key for identifying poor households for the COVID-19 CT programme 	<ul style="list-style-type: none"> OD-ID-Poor helped accelerate the identification of new beneficiaries whose data were not yet in the ID-Poor database The implementation of the COVID-19 CT programme could rely on commune officials who were already trained in using tablets for beneficiary identification due to their experience with the ID-Poor database 	<ul style="list-style-type: none"> Wing, the e-payment provider, enabled the COVID-19 CT programme to reach beneficiaries through its wide national coverage
Benefits for the rural population	<ul style="list-style-type: none"> The ID-Poor database allowed beneficiaries to be registered more quickly for consideration of eligibility in the COVID-19 CT programme 	<ul style="list-style-type: none"> The introduction of OD-ID-Poor reduced the time for eligibility verification and enrolment 	
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> Lack of access to necessary hardware and mobile internet were a challenge for beneficiary identification 	<ul style="list-style-type: none"> Long distances between remote communes meant high transportation costs for interview teams identifying rural beneficiaries More senior commune and council members sometimes lacked digital literacy skills 	<ul style="list-style-type: none"> Beneficiaries without access to the internet or digital technology had trouble accessing Wing, the e-payment provider A cap on cash withdrawals meant that the system could not handle too many withdrawal attempts at the same time Slow internet connections prolonged transaction times, especially in rural areas
Current solutions for barriers		<ul style="list-style-type: none"> Issues of a lack of digital literacy could be mitigated through the support of more junior commune clerks Working groups for village chiefs who had trouble with ICTs to clarify their doubts Availability of offline options 	

Source: Authors’ elaboration.

Beneficiary enrolment and benefit delivery: Togo’s Novissi programme

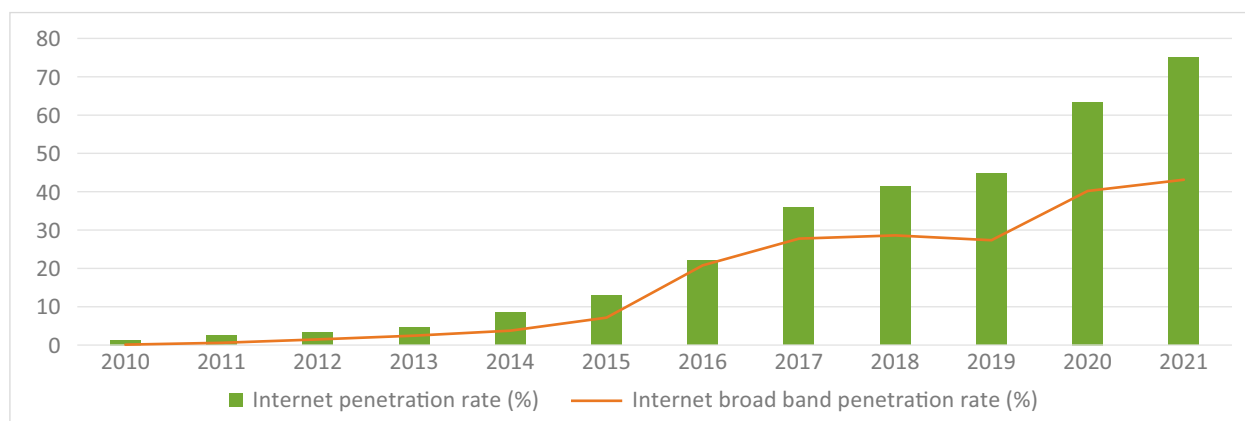


Created as a response to the COVID-19 pandemic, Togo’s **Novissi cash transfer programme** digitised every step of the delivery chain. The case study will focus specifically on its digital innovations for beneficiary enrolment and benefit delivery.

In 2018, 41.7 per cent of the population of Togo were living in urban areas, and more than a half resided in rural areas (UNDESA 2018). In 2020, 97 per cent of the population lived in areas that had mobile phone network coverage. 3G mobile network coverage stood at 97 per cent, while 4G network coverage increased from 65 per cent in 2020 to 83 per cent in 2021 (Ministry of Digital Economy and Transformation 2022b).

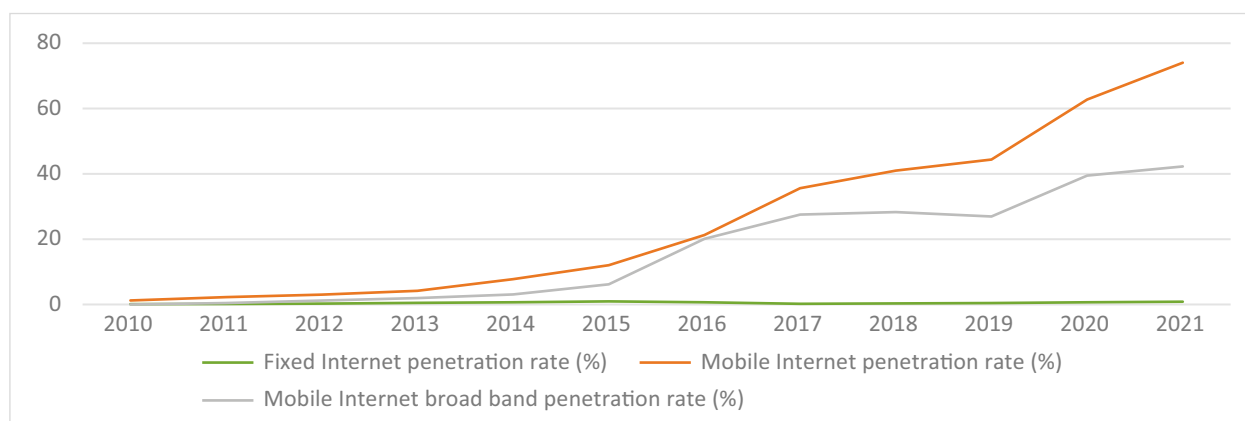
The internet penetration rate (fixed and mobile) has risen exponentially over the last 10 years, from 1.3 per cent in 2010 to about 63 per cent in 2020, with 40 per cent for broadband internet (see Figures 17 and 18). Despite the growing rate of internet penetration, the phones in circulation in the country are predominantly 2G phones, making it impossible for users to access broadband internet (ibid.).

Figure 17. Togo: Internet penetration and internet broadband penetration rates (%), 2010–2021



Source: Ministry of Digital Economy and Transformation (2022b).

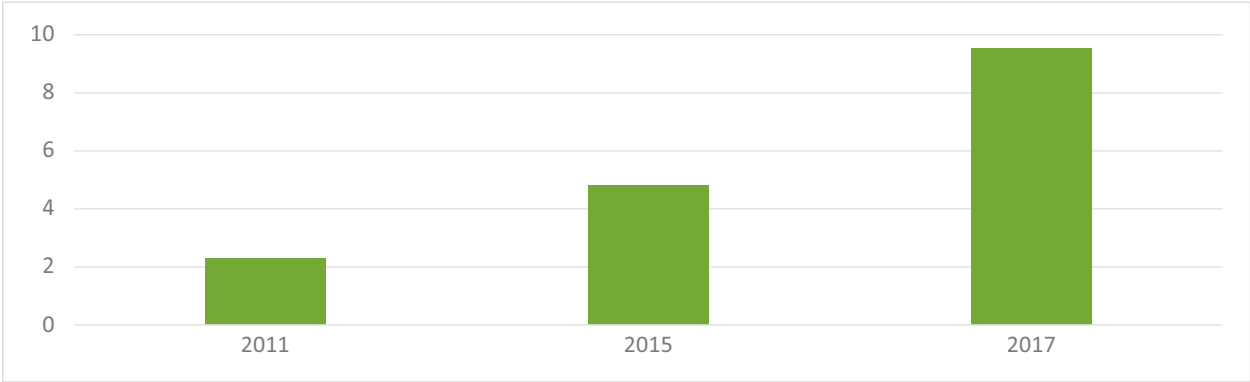
Figure 18. Togo: Fixed and mobile internet penetration rate (%), 2010–2021



Source: Ministry of Digital Economy and Transformation (2022b).

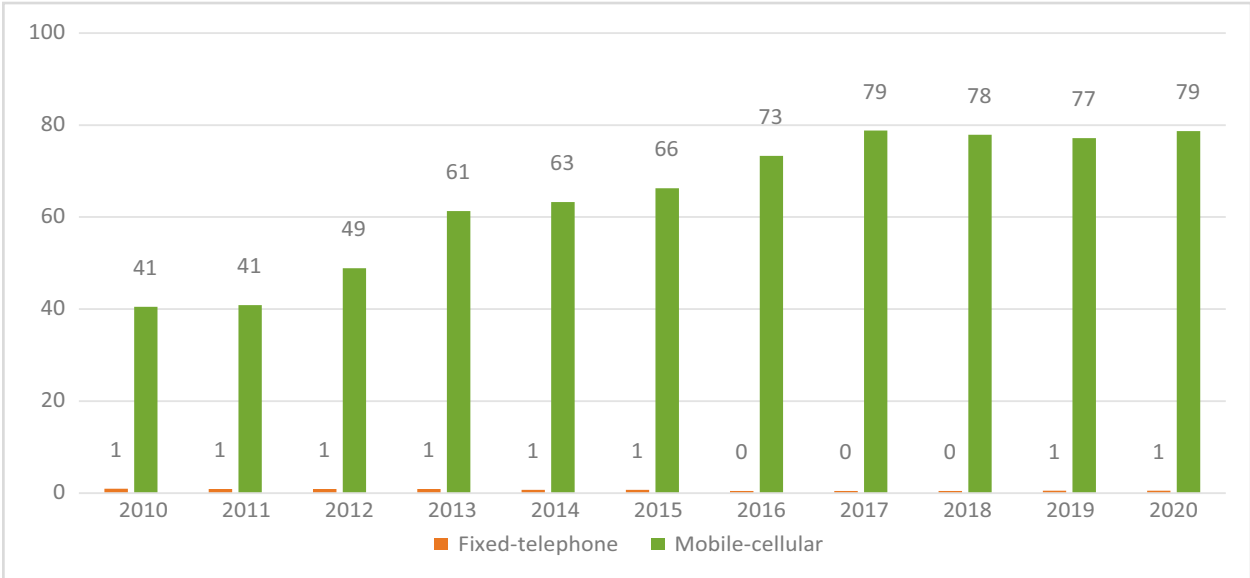
The low proportion of households with a computer at home (see Figure 19) suggests that the population accesses the internet through mobile phones or other means. In 2020, there were 79 mobile phone subscriptions per 100 inhabitants (see Figure 20). Most of these subscriptions are limited to urban areas, and Ohlenburg (2022) states that around 85 per cent of households own a mobile phone. Internet and mobile phone use is still low in the poorest and most remote areas (Ministry of Digital Economy and Transformation 2022a). As with internet use, rates of mobile phone use are higher among men (48.6 per cent) than women (39.5 per cent) in Togo (ITU 2022b).

Figure 19. Togo: Households with a computer at home (%), 2011–2017



Source: ITU (2022b).

Figure 20. Togo: Telephone subscriptions per 100 inhabitants (%), 2010–2020



Source: ITU (2022b).

According to the World Bank (2022c), 45 per cent of the population aged 15 or above had an account with a financial institution or used a mobile money service in 2017. The proportion was lower among females (38 per cent), highlighting a gender gap in digital financial inclusion. Moreover, just 31 per cent of the population (15 years old or more) made or received digital payments in 2017, and only 10 per cent received government salaries or transfers to an account with a financial institution or mobile money service provider.

The **Novissi cash transfer programme** was launched as part of Togo’s COVID-19 response in a context where large-scale social assistance programmes were lacking (Ohlenburg 2022). It was implemented in two different phases (see Table 8), taking the realities of Togo’s rural and poor people into account while relying on digitalisation throughout its delivery chain.²⁰

20. The digital platform for beneficiary identification and benefit payments was built from scratch in 10 days. Novissi phase 2 was implemented in two batches. The first batch targeted Togo’s 100 poorest cantons, while the second batch targeted the next poorest 100 cantons (Ministry of Digital Economy and Transformation 2022b).

Table 8. Togo: Novissi programme

Implementing institutions	Ministry of Digital Economy and Digital Transformation (MENTD)	
Programme summary	<p><i>Novissi</i> phase 1:</p> <ul style="list-style-type: none"> The initial phase of the cash transfer programme, which was framed as an immediate response within 10 days of the start of the pandemic, had the following eligibility criteria: <ul style="list-style-type: none"> Be a Togolese citizen living in Togo Be an adult aged 18 years or over Have a voter ID card Be an informal worker whose livelihood has been impacted by COVID-19 Live in areas affected by the pandemic. The programme lasted between April 2020 and March 2021. Benefits were paid in a maximum of four instalments, depending on the time of registration and length of the programme whenever a curfew was implemented. 	<p><i>Novissi</i> phase 2:</p> <ul style="list-style-type: none"> A follow-up to <i>Novissi</i> that expanded coverage and improved targeting. Given the limited resources available, the focus was on the poorest adults (aged 18 and above) in the poorest locations. The eligibility criteria were: <ul style="list-style-type: none"> Live in the 200 poorest cantons in Togo Be identified as a vulnerable person, earning USD1.25/day or less, by the artificial intelligence (AI) algorithm. The programme lasted between November 2020 and August 2021. Benefits were paid in five instalments per beneficiary.
Outreach and registration	<ul style="list-style-type: none"> The registration process was internet agnostic. It was created to work with an Unstructured Supplementary Service Data (USSD) short code that can be accessed from any phone and a 2G network. Users could apply for benefits by dialling *855# from any mobile phone and following the prompts to provide information. 	
Enrolment	<p><i>Novissi</i> phase 1:</p> <ul style="list-style-type: none"> Voter registration cards served as biometric ID for the programme, pending the implementation of the e-ID projects. The voter registry also contains self-reported information on voters' occupations, which was used to identify workers in the informal sector. The voter ID was linked to a mobile phone number after enrolment via the *855# USSD short code via a text message-based system. Phone numbers were linked to a mobile money account. For numbers that did not have an active mobile money account, one was automatically created for the beneficiaries after enrolment. 	<p><i>Novissi</i> phase 2 relied on novel data sources to identify target areas and beneficiaries in the absence of previous data:</p> <p>Stage 1—Identification of poorest cantons:</p> <ul style="list-style-type: none"> A poverty map splitting the country into 2.4 km blocks was created using satellite imagery and computer vision AI. The AI estimated population density and, based on household survey data (used as training data for the algorithm), estimated average household consumption per block. These blocks were then matched to Togo's canton borders to determine which were the poorest cantons. <p>Stage 2—Identification of poorest households in the 200 poorest cantons based on household assets:</p> <ul style="list-style-type: none"> A proxy means test model was developed based on a living standards phone survey with 10,000 households in the aforementioned cantons to determine the household characteristics to be used for a household consumption estimate. <p>Stage 3—Identification of the poorest households in the poorest cantons based on call detail records (CDR):</p> <ul style="list-style-type: none"> In the absence of a nationally representative social registry, <i>Novissi</i> used households' phone usage as the consumption proxy. A machine learning model was used to link the estimated household consumption levels from Stage 2 with the survey respondents' CDR data. Based on the phone usage data associated with the proxy means test model, when a household registered for <i>Novissi</i>, the phone records associated with the household provided a proxy for household consumption, allowing income to be estimated and eligibility to be determined instantly. For <i>Novissi</i> phase 2, a consumption level of USD1.25/day or less was chosen to establish eligibility.
Delivery	After being deemed eligible, individual applicants received the benefits via mobile money accounts linked to the phone number used to register.	

Source: Aiken et al (2022; 2021); Debenedetti (2021); Ministry of Digital Economy and Transformation (2022a; 2022b; 2020); République Togolaise (2022); UNDP Asia-Pacific Regional Innovation Centre (2020); World Bank (2021); Ohlenburg (2022).

By digitalising every step of its delivery chain, *Novissi* reached nearly 820,000 people while avoiding mass contamination during the pandemic (Ministry of Digital Economy and Transformation 2022a; Debenedetti 2021). To do so, it used a combination of technologies that catered to the realities of poor people living in rural areas. Mobile money has broad coverage in Togo and is the digital means most used by the population for money transfers. Therefore, programme beneficiaries could access their money even in remote areas. Using channels of communication such as radio in remote and rural areas also helped to raise awareness about the programme among target populations (Ministry of Digital Economy and Transformation 2022a). Once the targeted rural communities learned about the programme, the prospective beneficiaries could, if necessary, use a relative's mobile phone to register for the benefit (ibid.).

One feature of *Novissi* that stands out is its mix of non-internet digital tools to avoid excluding poor households. Since 2G phones are more accessible in the country than 3G or 4G phones, to reach rural areas it was fundamental for *Novissi* to use technology that does not rely on the internet. This was achieved by using USSD technology, which can be used by 2G phones. In addition, the lead ministry, the Ministry of Digital Economy and Digital Transformation, passed several regulations to encourage phone operators to expand their services to rural areas, where they were reimbursed for capital expenditures. This made it possible to achieve 91 per cent 2G coverage in the country, thus enabling everybody with at least a feature phone to access the cash transfer programme even in remote places (ibid.).

To tackle the lack of robust data infrastructure to estimate poverty, the programme relied on AI and a machine learning-based targeting model (ibid.). The use of poverty maps by leveraging satellite imagery, along with Togolese household consumption survey data coupled with pre-trained computer vision algorithms to extract features from the satellite, helped to predict the average consumption of households. In determining rural poverty, some of the assumptions embedded in the AI programme were the very low density of houses, the poor quality of roof materials and of road construction, the size of the land plots, a lack of a clear sense of urban planning, and a lack of electricity and water, among others (Ministry of Digital Economy and Transformation 2022a; Aiken et al. 2022). Comparative analysis of the two targeting methodologies used by *Novissi* reveals that the AI-based targeting methodology reduced the risk of exclusion by 4–21 per cent, especially in rural areas, compared to the occupation-based targeting methodology used in phase 1 of the programme (Aiken et al. 2022). However, not every canton of the country was targeted due to budgetary constraints, posing a limit to what AI can do to support inclusion (Ohlenburg 2022).

Additionally, machine learning algorithms were used to identify the poorest individuals in the poorest localities by estimating the average daily consumption of each mobile phone subscriber and analysing mobile phone metadata provided by operators.²¹ Phone surveys were also conducted with a large and representative sample of mobile phone subscribers. The survey data were used to measure the wealth and/or consumption of each subscriber and later matched to detailed metadata on each subscriber's phone use history (Ministry of Digital Economy and Transformation 2022a; Aiken et al. 2022). Note that the consumption proxy chosen to identify poor people for *Novissi*'s phase 2 targeting relied on CDR. Previous research has shown that CDR are a reasonably good proxy for consumption and can thus be used to identify households living below a certain poverty threshold (Ohlenburg 2022).

The use of digital technology for every step of the delivery chain likely prevented fraud. *Novissi* automated both beneficiary identification and benefit delivery such that there would be no human tampering with the programme, nor could any beneficiary receive more money than the amount set out in the programme design. The biometric voter ID²² guaranteed the uniqueness of beneficiaries and reduced fraud and duplication. The platform was also designed in a way that designated one phone number to one person. All these steps have helped increase efficiency,

21. A phone's metadata describe key facts about an individual data file, such as phone calls, photographs, texts etc. (Howe Law Firm 2018).

22. Voter IDs are the most common biometric identification option in the country, covering over 90 per cent of adults (Lowe, McCord, and Beazley 2021). Due to their link to a database that could be used for eligibility verification, these ID cards proved very useful for *Novissi* (Debenedetti 2021). Besides, at the time *Novissi* was launched in April 2020, the voter ID database was the most up-to-date database, as Togo had held presidential elections in February 2020 (Ministry of Digital Economy and Transformation 2022b).

transparency and cost-effectiveness. User privacy, regulated by the country's comprehensive Cybersecurity Act and a Data Protection Act, was given utmost priority in the design of the programme (Ministry of Digital Economy and Transformation 2022a).

Several steps were taken to avoid the use of private data. Among other protections, organisational safeguards were built that minimised the data to which each party had access: for instance, neither GiveDirectly nor the Government of Togo ever had access to the data collected by the mobile phone operators, nor to the poverty scores derived from the mobile data. The only data the government received were the phone numbers of beneficiaries to trigger the registration campaign and make disbursements to eligible people who had registered (Ministry of Digital Economy and Transformation 2022a; Aiken et al. 2022).

Strict anonymisation, encryption and access protocols were also used to ensure that all data were pseudonymised to remove personal information. Consent was sought whenever possible. For instance, phone survey respondents provided informed consent before participating, and programme beneficiaries were asked for consent to use their data for programme administration during the USSD registration process. It is worth mentioning that the *Novissi* platform has been audited and secured by Cyber Defence Africa, a joint venture between the Togolese government and ASSECO, one of the world leaders in cybersecurity (Ministry of Digital Economy and Transformation 2022a).

Novissi also deployed a toll-free number operated by a call centre to respond to requests from the public and complaints from beneficiaries. The call centre sent daily reports to the project team. This report presented the number of calls received and categorised them according to the different reasons for complaints identified. A list of all complainants was attached to the daily report. The *Novissi* team has also provided the call centre with a platform that allows them to have basic information on beneficiaries and enrollees so that the centre can identify the complainants and communicate the reason why they were not deemed eligible (ibid.).

Despite these positive experiences, the programme has also encountered challenges that may have resulted in the exclusion of certain beneficiaries. First, the voter ID database has been criticised for the politicisation of voter registration. As Lowe, McCord and Beazley (2021) point out, while this was indeed the best option in the absence of other registries, it is likely that supporters of the opposition party were underrepresented in the voter ID database. Further, while 2G phones are more affordable, and relatives could share phones, around 15 per cent of households do not have access to this technology (Ohlenburg 2022). Vulnerable households who would need *Novissi* benefits are likely to be overrepresented in this group. Ohlenburg (2022) also points to the need for geographical expansion of *Novissi* if it is to develop into a flagship social protection programme in the country beyond its COVID-19 response.

To address the lack of a national ID database, Togo is currently receiving World Bank support to put in place a national unique biometric ID system and interoperable databases that could be leveraged to better identify vulnerable people to provide them with the right social support. For programmes such as *Novissi* to succeed, there is a need for structured ways to collect, store and analyse various data securely. The need to open channels of data exchange between various stakeholders to improve transparency and efficiency has been identified as an important issue for the future. This should help to embed policymaking more firmly in a process driven by real-time data analysis (Ministry of Digital Economy and Transformation 2022a).

One final interesting development concerning the impact of the programme on the future of Togolese social protection is the formation of the Togo e-ID programme and social registry. These are two innovative digital projects that resulted from the *Novissi* programme. These projects are currently in the foundational stage and are part of the 2025 government roadmap. The aim is to tackle the absence of an up-to-date social registry for beneficiary enrolment based on key social indicators to estimate poverty, enabling an inclusive approach such that vulnerable and poor people residing in remote and rural areas will be identified and reached effectively (Ministry of Digital Economy and Transformation 2022a; 2022b).

Snapshot: Togo's *Novissi* programme

	Outreach and registration	Enrolment	Delivery
Benefits for implementers		<ul style="list-style-type: none"> • Call detail records (CDR) used for beneficiary identification in the absence of household survey data • Automation of beneficiary identification prevented fraud • AI reduced targeting errors 	<ul style="list-style-type: none"> • Automation of delivery prevented the transfer of incorrect amounts
Benefits for the rural population	<ul style="list-style-type: none"> • USSD can be used by those with 2G phones 	<ul style="list-style-type: none"> • AI reduced exclusion 	<ul style="list-style-type: none"> • Mobile money is inclusive, as it is widely used
Barriers left unaddressed or reinforced	<ul style="list-style-type: none"> • Not everyone has access to mobile phones • The voter ID database may exclude some political groups 	<ul style="list-style-type: none"> • Those not in line with AI assumptions may have been excluded • Exclusion by design is possible, as not everyone has a voter ID, and not every canton was targeted 	<ul style="list-style-type: none"> • Not everyone has access to a mobile phone
Current solutions for barriers	<ul style="list-style-type: none"> • Families could share phones to register • The Ministry of Digital Economy and Digital Transformation passed regulations to increase 2G coverage 		<ul style="list-style-type: none"> • The Ministry of Digital Economy and Digital Transformation passed regulations to increase 2G coverage

Source: Authors' elaboration

III. Looking Forward

Conclusions and policy implications

Contributions of digitalisation to social protection performance in rural areas

The COVID-19 pandemic propelled countries around the world to adopt digital technologies to swiftly deliver social protection to those most affected by movement restrictions. The adoption of digital tools enabled countries to provide immediate relief to mitigate the worst effects of the lockdowns, while complying with the public health measures introduced to prevent the spread of the disease. In many unforeseen ways, COVID-19 ushered in a kind of ‘digital leap-frogging’ in the social protection sector—but one that could build on existing efforts to digitalise social protection systems with the aim of improving their performance and impact.

Both before and since the pandemic, digital technologies have played a key role in improving social protection delivery and uptake in rural areas. Digital tools such as social and beneficiary registries, online platforms for benefit application, and mobile money and bank accounts for benefit delivery, among others, can support rural social protection by **minimising transportation costs** for beneficiaries, as well as the **administrative costs** of programme implementation. They may also enhance the efficiency and agility of programme delivery and enable marginalised groups to realise their right to social protection. These tools were crucial to the pandemic response.

At the same time, digitalised social protection may **reinforce existing inequalities** and deepen exclusion if tools and technologies are not tailored to the needs and capacities of the people they are meant to support. Rural dwellers tend to be among those who could be disadvantaged by the introduction of digital tools into social protection systems. The lack of ID ownership or physical addresses, of general and digital literacy, and of connectivity and access to ICTs poses significant barriers for rural populations to reap the benefits of digital social protection and could even contribute to further excluding rural women, elderly people and ethnic minorities. Solutions to these problems require policies and investment from other sectors, **beyond social protection**. In their absence, the wholesale embrace of digital solutions as a core ingredient of social protection delivery could easily do more harm than good.

The evidence presented in this report, drawing from the eight case studies conducted as part of this enquiry, points to a set of benefits that can be expected from digitalising rural social protection, and risks that must be avoided. They are depicted, in stylised form, in Table 9.

Some design features and implementation arrangements can make it more likely that digital solutions will support rural social protection and mitigate the risks depicted in Table 9. The literature review and the eight case studies in this report highlight several such features.

First, the option to use **non-internet ICTs and analogue tools** across all steps of the social protection delivery chain has proven to be a key programme design feature to ensure rural dwellers’ rights to social protection, as observed to different extents in all case studies. Argentina, Jordan and the Philippines used multiple outreach and registration methods. Further, data collection in rural villages and communes was often facilitated by the use of tablets that worked offline (Cambodia) or even hard copies (Uganda). In Morocco, the fact that mobile payments do not require smartphones, and the availability of other payment modalities, help ensure that rural beneficiaries can choose the best way to cash their transfer. This also entails using implementing agents to reach out to individuals who are unable to register via ICTs (Jordan and Türkiye). In Jordan, for example, NAF staff went as far as to take over the registration of applicants and the creation of e-wallets on beneficiaries’ behalf when necessary.

Table 9. Expected benefits and potential challenges and risks of digitalisation for rural social protection performance

Digital solution	Expected benefits	Potential challenges/risks
Multiple (e.g. tailored online portals, software applications and social media, mobile phones, tablets, integrated registries and databases)	<p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Reduction of administrative and transportation costs <p>Efficiency and effectiveness (demand):</p> <ul style="list-style-type: none"> Reduction of transportation costs <p>Inclusiveness:</p> <ul style="list-style-type: none"> May facilitate access to social protection services 	
Application portals (Turkiye's e-Devlet and the Philippines' ReliefAgad)	<p>Efficiency and effectiveness (supply and demand):</p> <ul style="list-style-type: none"> Possibility of beneficiary self-registration <p>Responsiveness:</p> <ul style="list-style-type: none"> Additional layer of privacy Quicker data collection and updating 	
Software applications (Jordan's NAF-Visit, the Philippines' use of Zoom, Google Meets and social media apps)	<p>Efficiency and effectiveness (demand):</p> <ul style="list-style-type: none"> Easier access to information about the programme <p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Beneficiaries may facilitate outreach by sharing information themselves Remote capacity-building of data collectors 	<p>Inclusiveness:</p> <p>Multiple exclusions and exacerbation of inequalities (both between rural and urban populations and within rural populations) due to:</p> <ul style="list-style-type: none"> Lack of internet connectivity among applicants Lack of digital literacy of applicants Lack of access to functioning ICTs among applicants, leading to disparities in information access, especially among those historically marginalised Vulnerable groups tend to lack ID or other means to identify and locate them
Non-internet ICTs (Togo's use of 2G phones and Cambodia's and Uganda's use of tablets that work offline)	<p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Work in areas with little connectivity Avoidance of human errors, leading to greater data accuracy <p>Inclusiveness:</p> <ul style="list-style-type: none"> Greater accessibility than internet-based ICTs Fewer infrastructure requirements 	
(Integrated) registries and databases (Turkiye's ISAS, Jordan's NUR, Cambodia's ID-Poor, Argentina's ReNAF and the Philippines' PPIS)	<p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> May pre-fill registration forms, avoiding human errors <p>Efficiency and effectiveness (demand):</p> <ul style="list-style-type: none"> Data can complement multiple programme applications <p>Responsiveness:</p> <ul style="list-style-type: none"> (Parts of) registration steps can be skipped during shocks 	
Phone data (Togo's use of CDR and USSD)	<p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Data for consumption proxies <p>Responsiveness:</p> <ul style="list-style-type: none"> Data collection in the absence of surveys 	



Digital solution	Expected benefits	Potential challenges/risks
	<p>Multiple^a (e.g. tailored online portals, integrated registries or databases, software applications and social media, artificial intelligence and automation)</p> <p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Avoidance of human errors, leading to greater data accuracy Prevention of fraud and duplication <p>Responsiveness:</p> <ul style="list-style-type: none"> Increased data update frequency (the benefits of which spill over to delivery, as it can result in faster payment) Rapid identification of beneficiaries 	<p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Lack of internet connectivity during data collection Lack of digital literacy of data collectors Lack of functioning ICTs among data collectors <p>Responsiveness:</p> <ul style="list-style-type: none"> Data protection concerns <p>Inclusiveness:</p> <ul style="list-style-type: none"> Lower connectivity, access to ICTs and lack of digital literacy in rural areas can exacerbate exclusion of already marginalised groups
Enrolment	<p>(Integrated) registries and databases</p> <p>(Türkiye's ISAS, Jordan's NUR, Uganda's NSR, Argentina's ReNAF, Cambodia's ID-Poor and the Philippines' PPIS)</p> <p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Enhances coordination between sectors and programmes Enables the availability of big data <p>Responsiveness:</p> <ul style="list-style-type: none"> Quick data verification <p>Inclusiveness:</p> <ul style="list-style-type: none"> Potential to expand the reach of the State 	<p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Challenges locating beneficiaries due to a lack or changes of addresses <p>Responsiveness:</p> <ul style="list-style-type: none"> Dependence on frequency with which other databases are updated <p>Inclusiveness:</p> <ul style="list-style-type: none"> Vulnerable groups tend to lack ID or other necessary identification keys such as tax numbers
	<p>Software applications</p> <p>(Cambodia's use of Zoom and Google Meets)</p> <p>Efficiency and effectiveness (supply):</p> <ul style="list-style-type: none"> Remote capacity-building of data collectors 	<p>The same risks/barriers mentioned for the other digital tools also apply here</p>
	<p>Automation and artificial intelligence</p> <p>(Togo's Novissi programme)</p> <p>Inclusiveness:</p> <ul style="list-style-type: none"> Reduction of exclusion errors 	<p>Inclusiveness:</p> <ul style="list-style-type: none"> Exclusion of those not in line with the algorithm's assumptions



	Digital solution	Expected benefits	Potential challenges/risks
Delivery	Multiple ^b (e.g. mobile money, postal banks, cash cards, artificial intelligence and automation)	Efficiency and effectiveness (supply): <ul style="list-style-type: none"> Saves time and money used for travel and waiting to collect benefits physically Responsiveness: <ul style="list-style-type: none"> Automation or acceleration of benefit delivery 	Inclusiveness: Multiple exclusions and exacerbation of inequalities (both between rural and urban populations and within rural populations) due to: <ul style="list-style-type: none"> Lack of internet connectivity among applicants Lack of digital literacy of applicants Lack of functioning ICTs among applicants Lack of bank accounts among applicants
	Mobile money (Morocco's mobile payments, Jordan's e-wallets, Cambodia's Wing, and the Philippines' and Togo's mobile money)	Efficiency and effectiveness (demand): <ul style="list-style-type: none"> Mitigates the need to travel to a bank, thus reducing beneficiaries' transport costs Efficiency and effectiveness (supply): <ul style="list-style-type: none"> No need for the installation or expansion of bank branches Inclusiveness: <ul style="list-style-type: none"> Better reach in remote areas provided they have the necessary infrastructure 	Efficiency and effectiveness (demand): <ul style="list-style-type: none"> Requires a digital ecosystem that allows beneficiaries to use mobile wallets Responsiveness: <ul style="list-style-type: none"> Can crash or slow down
	Postal banks (Morocco's ABB)	Inclusiveness: <ul style="list-style-type: none"> Relatively wide physical coverage compared to other banks 	Inclusiveness: <ul style="list-style-type: none"> Time and transportation costs for beneficiaries
	Automation and artificial intelligence (Togo's machine learning and AI)	Efficiency and effectiveness (supply): <ul style="list-style-type: none"> Prevention of transfers of the wrong amount 	Inclusiveness: <ul style="list-style-type: none"> Exclusion of those not in line with the algorithm's assumptions May replicate exclusionary design issues
Grievance and redressal	Multiple ^c (e.g. telephone hotlines or call centres, email, SMS, websites)	Efficiency and effectiveness (supply and demand): <ul style="list-style-type: none"> Faster feedback to government implementation agencies Inclusiveness: <ul style="list-style-type: none"> Allows people to provide feedback remotely 	Inclusiveness: <ul style="list-style-type: none"> Lack of connectivity, ICT access or digital literacy remains a barrier even for most simple and cheap technologies
	Non-internet ICTs (Jordan's and the Philippines' use of telephones and SMS)	Inclusiveness: <ul style="list-style-type: none"> More accessible, as does not depend on internet connectivity and relies on cheaper technologies 	

Note: a. The benefits, risks and barriers of digital application portals (based on the experiences of Türkiye's e-Devlet and Jordan's application portal for *Takaful*) are all included here. b. The benefits, risks and barriers of the Philippines' cash cards used for the SAP are also included here. c. This row already includes the benefits, risks and barriers of Jordan's *Takaful* website.

Source: Authors' elaboration.

Given that remote rural communities tend to be historically marginalised and excluded from public services, it is useful that implementing agents raise awareness not just about social protection programmes but also about the digital social protection tools that rural dwellers are eligible to use. In Argentina, outreach to remote rural areas entails explaining what the ReNAF is and how family farming is understood in the country. Similarly, an outreach campaign in Morocco was necessary to motivate those who would otherwise be hesitant to trust mobile payments to use them.

Effective implementation also requires support from **local governments and communities**. This was the case in Argentina, Cambodia and the Philippines. Notably, Argentina worked with farmer organisations for outreach and data collection, while Cambodia relied on communes not only to gather and verify data but also by having more junior commune clerks support chiefs who lacked digital literacy. However, communities' **material and human capacity** to provide this support may vary. As the case of Cambodia revealed, a lack of digital literacy can also affect the supply side of rural social protection. Moreover, collaboration with rural communities must ensure that it does not translate into breaches of privacy (as seen in Türkiye prior to the usage of e-Devlet) and the potential stigmatisation of rural beneficiaries.

While rather outside government control, beneficiaries may share phones with family and friends. Recognising this habit, governments may wish to **make ID verification mechanisms more flexible** (as seen in Jordan and Togo) in the short to medium term to enable vulnerable beneficiaries to receive payments without being penalised for presumed fraud. This acknowledges that vulnerable populations, such as rural dwellers and poor and elderly people, may not be able to access or independently use ICTs. However, power imbalances within families and households are likely to influence the ways in which phones are shared between individuals.

Beyond the reach of the social protection sector, **policies expanding and regulating services** are fundamental, given how rural areas in many parts of the world still struggle with historically low coverage of basic and digital infrastructure. In Jordan, the public sector entered into contracts with e-wallet agents to increase the reach of mobile money, while Togo passed regulations to expand 2G coverage. Necessary efforts entail not just the expansion of electricity grids, phone network coverage, internet connectivity, and financial inclusion and education, but also the regulation of data-sharing protocols, promotion of open-source software and prevention of vendor lock-ins.

Similarly, the evidence presented here suggests that efforts to **expand the coverage of national IDs across rural areas** is a necessary precondition for guaranteeing the inclusion of vulnerable rural dwellers in social protection systems. The lack of IDs in Uganda posed a risk of excluding poor people in rural areas, showcasing a limitation of an otherwise well-designed social protection tool. On the other hand, Argentina's experience with coupling the ReNAF with DNI acquisition highlights how social protection can promote the expansion of ID in rural areas. These examples reflect how policy decisions—not just technology—drive the adoption and integration of ICT tools in the rural social protection delivery chain.

Implications for policy

The conclusions and lessons drawn from the literature and the case studies in this report point to a set of recommendations geared towards reducing the existing barriers to, and risks associated with, the adoption of digital tools at each step of social protection delivery in rural areas. Done properly, such tools can contribute positively to the effectiveness and efficiency, responsiveness and inclusiveness of rural social protection along the entire delivery chain:

Outreach and registration

- Multiple types of active outreach and awareness-raising activities must be put in place in rural areas where people have little to no access to social and digital services. This includes choosing communication methods tailored to different rural demographics, and their preferred sources of information and level of trust in the State. While some rural populations can be easily reached online or through SMS, others may require in-person communication and active search by implementing agents. Non-digital barriers such as literacy and languages spoken must also be considered.

Enrolment

- On-demand registration must complement enrolment through existing registries or databases, as these may be outdated and exclude vulnerable households.
- Programme staff must be available to support or take over registration with applicants' informed consent to overcome any potential limitations in rural dwellers' ability to use digital registration methods.

Delivery

- Providing necessary hardware and setting up training for programme staff, local officials or community members responsible for registration and enrolment can overcome barriers related to ICT access and allow those with limited ICT skills to obtain peer support, while encouraging community-wide digital learning processes. Along with ICT skills, training ought to transfer skills to implementing agents so that they can communicate effectively with rural communities and build their trust.
- The existence of up-to-date national databases, social or integrated beneficiary registries and MISs, is key for tracking current and potential beneficiaries, and for reducing the risk of excluding vulnerable applicants during registration. So are unique national identification systems.
- The identification keys of integrated databases must be tailored to the characteristics of rural populations. Where there is high informality, tax keys should be avoided in favour of national IDs. When rural dwellers lack ID, efforts to extend ID provision must go hand in hand with the extension of social protection coverage. This can be further supported by measures to waive requirements for ID renewal and the reduction or waiving of renewal fees for rural vulnerable groups.
- Payment and delivery mechanisms must be chosen or designed in ways that reduce the **marginalisation of rural dwellers** (and of specific subgroups within rural communities). This entails design choices beyond digitalisation, such as establishing vulnerable household members as benefit recipients and choosing payment modalities that can be safely obtained and used by vulnerable groups.

Grievance and redressal

- Digital and financial ecosystems must be in place to enable beneficiaries in rural areas to use e-wallets. This entails investments beyond the social protection sector, to ensure the availability of adequate digital infrastructure and of financial services tailored to rural populations.
- To ensure the privacy of rural beneficiaries, especially those who have experienced abuse or have historically faced discrimination, grievance and redressal mechanisms must enable remote submission of complaints and guarantee complainants' anonymity. To address power imbalances within households requires that complaints mechanisms do not depend on the household head.
- Information on complaints already submitted by other individuals and how they have been solved should be available to the public to ensure transparency and save programme staff time.

Further, the following measures can be taken across the whole delivery chain to ensure digital technologies are adequately used for rural social protection provision and uptake:

- Countries and development partners must **frequently collect data** on and **invest** in (digital) infrastructure, the density of bank branches or post offices in rural areas, (digital) literacy etc. As much as possible, the data must be disaggregated by gender, age, ethnicity and other key markers of inequality so that they can be incorporated into decision-making processes to ensure that programmes are adequately designed to reach rural populations.
- **Coordination between state actors**, such as different policy sectors or levels of government, as well as with **rural organisations** is key to ensuring that digital innovations are implemented efficiently, and that data are collected and updated frequently. This includes **involving rural communities** in programme design and implementation.
- It is imperative to have strong **data protection and privacy laws** as social protection systems become increasingly digitalised. This not only entails the steps that individuals must follow to register for a programme and receive its benefits, but also the arrangements that govern data-sharing between programmes, policy sectors, government levels and non-state actors.
- A **mixture of digital (online and offline) and analogue options** must be available for outreach and registration, enrolment, delivery and grievance redressal. The presence of non-digital options can avoid excluding those in rural areas who lack digital literacy, access to functional ICT facilities or networks, or the motivation (including trust) to use ICTs. These tools must be sensitive to the needs of rural populations, considering intersections between gender, ethnicity, disability and other context-specific markers of systemic inequality.
- Identification mechanisms must consider that **social protection beneficiaries may be accessing a system through a third party**. Care must be taken to avoid fraud or exploitation, by putting in place appropriate verification systems, while including third parties to ensure that the service is reaching the intended beneficiary. The interplay between this and systemic inequalities impacting access to mobile phones and IDs, as well as digital and financial literacy, must be considered to avoid exacerbating marginalisation.

Across the globe, social protection systems have become increasingly digital—a trend that has accelerated since the COVID-19 pandemic. While rural areas are diverse, they have often faced historical and systemic biases that become layered with ongoing efforts to digitalise social protection delivery and uptake. Rural practitioners and populations can look forward to more effective and efficient, responsive and inclusive social protection programmes and systems due to the introduction of digital technologies.

However, digitalising social protection also poses challenges and the very real risk of erecting new barriers that can undermine the benefits accruing to rural populations. Policymakers will do well to consider digitalisation not as a silver bullet but as a useful means to an end. Adopting digital tools will not singlehandedly fix systemic or programme design issues, but, with the necessary safeguards in place, it can undeniably help improve social protection performance.

Digital tools can and must be part of a country's social protection delivery toolkit. The challenge consists of finding the way to maximise the opportunities and benefits that digitalisation have to offer, while averting and minimising its risks.

References

- Aadil, Arshi, and Abhishek Jain. 2020. "Addressing the Weak Link in COVID-19 Relief: How Improving Strategic Communications Can Boost the Impact of Social Protection Programs." *NextBillion*, 20 October. <<https://nextbillion.net/covid-19-relief-improving-communications/>>. Accessed 28 November 2022.
- Aiken, Emily, Suzanne Bellue, Dean Karlan, Christopher R. Udry, and Joshua Blumenstock. 2021. "Machine Learning and Mobile Phone Data Can Improve the Targeting of Humanitarian Assistance." *CEGA Working Paper Series*, No. 57. Berkeley, CA: Center for Effective Global Action, University of California. <<https://doi.org/10.26085/C3GP41>>. Accessed 28 November 2022.
- Aiken, Emily, Suzanne Bellue, Dean Karlan, Christopher R. Udry, and Joshua Blumenstock. 2022. "Machine Learning and Mobile Phone Data Can Improve the Targeting of Humanitarian Assistance." *NBER Working Paper Series*, No. 91. Cambridge, MA: National Bureau of Economic Research. <<http://www.nber.org/papers/w29070>>. Accessed 28 November 2022.
- Barca, Valentina. 2016. "Grievance Mechanisms for Social Protection Programmes: Stumbling Blocks and Best Practice." *One Pager*, No. 320, 1. Brasília: International Policy Centre for Inclusive Growth. <<shorturl.at/LNOPV>>. Accessed 28 November 2022.
- Baur-Yazbeck, Silvia, Gregory Chen, and Joep Roest. 2019. "The Future of G2P Payments: Expanding Customer Choice." *Focus Note*. Washington, DC: Consultative Group to Assist the Poor.
- Beazley, Rodolfo, Marta Marzi, and Rachael Steller. 2021. *Drivers of Timely and Large-Scale Cash Responses to COVID-19: What Does the Data Say?* London: Social Protection Approaches to COVID-19 Expert Advice Service (SPACE) and DAI Global UK Ltd. <<shorturl.at/cotU5>>. Accessed 28 November 2022.
- Benni, Niclas. 2021. *Digital Finance and Inclusion in the Time of COVID-19: Lessons, Experiences and Proposals*. Rome: Food and Agriculture Organization of the United States. <<shorturl.at/ayEJQ>>. Accessed 28 November 2022.
- Berner, Heidi, and Tamara Van Hemelryck. 2021. *Social Information Systems and Registries of Recipients of Non-Contributory Social Protection in Latin America in Response to COVID-19*. Santiago: United Nations Economic Commission for Latin America and the Caribbean. <<shorturl.at/jovY6>>. Accessed 28 November 2022.
- Bill and Melinda Gates Foundation. 2021. *Digitalization for Improved Governance Financial Services for the Poor*. Seattle, WA: Bill and Melinda Gates Foundation.
- Biryabarema, Elias. 2018. "CORRECTED-Uganda to Make New Telecoms Investors Share Infrastructure." *Reuters*, 20 November 2018. <<https://www.reuters.com/article/uganda-internet-idUKL8N1XV2G1>>. Accessed 28 November 2022.
- Bloomberg, Jason. 2018. "Digitization, Digitalization, and Digital Transformation: Confuse Them At Your Peril." *Forbes* blog, 29 April. <<https://www.forbes.com/sites/jasonbloomberg/2018/04/29/digitization-digitalization-and-digital-transformation-confuse-them-at-your-peril/?sh=517a65502f2c>>. Accessed 28 November 2022.
- Bohl, Matías. 2021. Personal communication with the Ministerio de Agricultura, Ganadería y Pesca.

Botea, Ioana, Aline Coudouel, Alessandra Heinemann, and Stephanie Kuttner. 2021. *Safety First: How to Leverage Social Safety Nets to Prevent Gender Based Violence*. Washington, DC: World Bank Group. <<https://openknowledge.worldbank.org/handle/10986/35641>>. Accessed 28 November 2022.

Bumann, Jimmy, and Marc K. Peter. 2019. "Action Fields of Digital Transformation - A Review and Comparative Analysis of Digital Transformation Maturity Models and Frameworks." In *Digitalisierung und andere Innovationsformen im Management*, edited by A.H. Verkuil, K. Hinkelmann, and M. Aeschbacher, 13–40. Basel: Edition Gesowip. <shorturl.at/abdvS>. Accessed 28 November 2022.

Burattini, Beatriz, Camila Rolon, Lucas Sato, Victor Thives, Louisa Wagner, Arniela Rénique, and Mauricio Mireles. 2022. "Social Protection Response to COVID-19 in Rural LAC: The Potential of Digitalisation to Build Back Better." *Policy Research Brief*, No. 84. Brasília: International Policy Centre for Inclusive Growth. Accessed <https://ipcig.org/publication/31279?language_content_entity=en>. 28 November 2022.

Castañeda, Andrés, Dung Doan, David Newhouse, Minh Cong Nguyen, Hiroki Uematsu, and João Pedro Azevedo. 2018. "A New Profile of the Global Poor." *World Development* 101(C): 250–267. <<https://ideas.repec.org/a/eee/wdevel/v101y2018icp250-267.html>>. Accessed 28 November 2022.

Chanvirak, Khann. 2020. "Government Allocates over \$31 Million More for IDPoor Scheme." *Khmer Times*, 25 October. <<https://www.khmertimeskh.com/50776774/government-allocates-over-31-million-more-for-idpoor-scheme/>>. Accessed 28 November 2022.

Chirchir, Richard, and Valentina Barca. 2020. *Building an Integrated and Digital Social Protection Information System*. Bonn and Eschborn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit. <shorturl.at/vDEL4>. Accessed 28 November 2022.

Chirchir, Richard, and Chez Farooq. 2017. *Mapping of the Social Protection Management Information Systems (MISs) in Uganda*. Bristol, UK: Development Pathways.

Cho, Yoonyoung. 2021. "Realizing the 'Transformational Trilogy' of Social Protection Delivery in the Philippines." World Bank blog, 14 January. <<https://blogs.worldbank.org/eastasiapacific/realizing-transformational-trilogy-social-protection-delivery-philippines>>. Accessed 28 November 2022.

CNAAS. 2021. *Agricultural Insurance & Digital Payments Challenges of Payment Digitalization in Rural Areas of Senegal*. Dakar: National Agricultural Insurance Company of Senegal.

Cruz, Karisha Anne, Maria Isabel Fernandez, Kate Glynn-Broderick, Yuna Liang, Rebecca Rouse, and Nassreena Sampaco-Baddiri. 2022. "From Digital G2P Payments to Greater Financial Inclusion—Latest Findings from the Philippines." Innovations for Poverty Action website, 8 February. <<https://www.poverty-action.org/blog/digital-g2p-payments-greater-financial-inclusion%E2%80%94latest-findings-philippines>>. Accessed 28 November 2022.

Cruz, Kelma Christina Melo dos Santos, Gustavo Lund Viegas, and Regina Helena Rosa Sambuichi. 2021. Personal communication with the National Supply Company (Conab) about the *Programa de Aquisição de Alimentos* in Brazil.

Cudis, Christine. 2020a. "Registrations on 'ReliefAgad' App Undergo Careful Checking: DSWD." Government of the Philippines official website, 27 May. <<https://www.pna.gov.ph/articles/1104087>>. Accessed 28 November 2022.

Cudis, Christine. 2020b. "DSWD Uncovers 51,563 Duplicate Aid Beneficiaries." Government of the Philippines official website, 23 June. <<https://www.pna.gov.ph/articles/1106778>>. Accessed 28 November 2022.

De Arruda, Pedro Lara, Marina Lazarotto De Andrade, Tiago Falcao Silva, Diana Teixeira Barbosa, and Matteo Morgandi. 2021. *Auxilio Emergencial: Lessons from the Brazilian Experience Responding to COVID-19*. Washington, DC: World Bank Group. <<http://documents.worldbank.org/curated/en/099255012142121495/P1748361b302ee5718913146b11956610692e4faf5bc>>. Accessed 28 November 2022.

Debenedetti, Luciana. 2021. *Togo's Novissi Cash Transfer: Designing and Implementing a Fully Digital Social Assistance Program during COVID-19*. Lomé: IPA. <<shorturl.at/dlK39>>. Accessed 28 November 2022.

Deganis, Isabelle, Pegah Zohouri Haghian, Makiko Tagashira, and Adriana Alberti. 2021. "Leveraging Digital Technologies for Social Inclusion." *Policy Brief*, No. 92. New York: United Nations Department of Economic and Social Affairs.

Development Pathways. 2022. *Uganda's National Single Registry: A Foundation for a Digital Social Protection Ecosystem. Project report*. Bristol, UK: Development Pathways. <https://www.developmentpathways.co.uk/wp-content/uploads/2022/04/Ugandas-National-Single-Registry_v3-compressed.pdf>. Accessed 28 November 2022.

Digital Transformation Coordination Department. 2022a. Key informant interview: E-Devlet system. Microsoft Teams video call.

Digital Transformation Coordination Department. 2022b. Personal communication: Interview for IPC-IG/FAO study about e-Devlet, 10 August.

Digital Transformation Coordination Department. 2022c. Personal communication: Interview for IPC-IG/FAO study about e-Devlet, 26 August.

Director General of Communication, Department of e-Government Services. 2016. *2016-19 National e-Government Strategy and Action Plan*. Ankara: Department of e-Government Services. <<http://www.egovturkey.com/wp-content/uploads/2018/08/2016-2019-National-e-Government-StrategyAnd-Action-Plan-1.pdf>>. Accessed 28 November 2022.

Directorate of Registries and Formalisation. 2022. Key informant interview: Registries used by the Monotributo Social para la Agricultura Familiar. Microsoft Teams video call.

DSWD. 2020. *Social Amelioration Program Guidelines*. Manila: Department of Social Welfare and Development. <<https://www.adb.org/sites/default/files/linked-documents/43407-017-sd-05.pdf>>. Accessed 28 November 2022.

DSWD. 2022a. *Listahanan Info Kit*. Manila: Department of Social Welfare and Development. <https://listahanan.dswd.gov.ph/wp-content/uploads/2019/11/listahanan_info_kit_7.pdf>. Accessed 28 November 2022.

DSWD. 2022b. Personal communication: Follow-up on key informant interview from DSWD FMS regarding digital innovations in delivering social protection, 23 September.

DSWD. n.d. "SAP Frequently Asked Questions (FAQs)." Department of Social Welfare and Development website. <<https://www.dswd.gov.ph/frequently-asked-questions-on-sap/>>. Accessed 28 November 2022.

Eom, Seok-Jin, and Jooho Lee. 2022. "Digital Government Transformation in Turbulent Times: Responses, Challenges, and Future Direction." *Government Information Quarterly* 39(2): 101690. <<https://doi.org/10.1016/j.giq.2022.101690>>. Accessed 28 November 2022.

ESCWA. 2021. *Targeted Social Protection in Arab Countries before and during the Covid-19 Crisis*. Beirut: United Nations Economic and Social Commission for Western Asia.

FAO. 1997. "Session 1: Management Information Systems." In *Management of agricultural research: A training manual*. Rome: Food and Agriculture Organization of the United Nations. <<https://www.fao.org/3/W7506E/w7506e03.htm#TopOfPage>>. Accessed 28 November 2022.

FAO. 2020. *Social Protection and COVID-19 Response in Rural Areas*. Rome: Food and Agriculture Organization of the United Nations, 10.

FAO. 2022. *Potential Cases for the Analysis of Digital SP*. Rome: Food and Agriculture Organization of the United Nations.

FAO UG. 2022. Personal communication: Digital social protection: Uganda case study, 29 September.

FECOFE. 2021. "Monotributo Social Agropecuario: un derecho recuperado por las organizaciones del otro campo." *Noticias* blog, 22 October. <shorturl.at/aglMX>. Accessed 28 November 2022.

Former Tayssir Directorate. 2022. Key informant interview: Use of Al Barid Bank and mobile banking units for Tayssir. Microsoft Teams video call.

Gelb, Alan, and Anit Mukherjee. 2020. "Digital Technology in Social Assistance Transfers for COVID-19 Relief: Lessons from Selected Cases." *Center for Global Development Policy Brief*, No. 181. Washington, DC: Center for Global Development.

Giest, Sarah, and Annemarie Samuels. 2020. "'For Good Measure': Data Gaps in a Big Data World." *Policy Sciences* 53(3): 559–569. <<https://doi.org/10.1007/s11077-020-09384-1>>. Accessed 28 November 2022.

Gillwald, Alison, Onkokame Mothobi, Ali Ndiwalana, and Tusu Tusubira. 2019. "The State of ICT in Uganda." *Policy Paper*, No. 8; Series 5: *After Access – Assessing Digital Inequality in Africa*. Research ICT Africa. <https://researchictafrica.net/wp/wp-content/uploads/2019/05/2019_After-Access-The-State-of-ICT-in-Uganda.pdf>. Accessed 28 November 2022.

Government of Argentina. 2019a. "Monotributo social." Government of Argentina website, 12 July. <<https://www.argentina.gob.ar/justicia/derechofacil/leysimple/monotributo-social>>. Accessed 28 November 2022.

Government of Argentina. 2019b. "Monotributo social para la agricultura familiar." Government of Argentina website, 12 July. <<https://www.argentina.gob.ar/justicia/derechofacil/leysimple/monotributo-social-para-la-agricultura-familiar>>. Accessed 28 November 2022.

Government of Cambodia. n.d.a. "IDPoor Process." IDPoor website. <<https://mop.idpoor.gov.kh/about/process>>. Accessed 28 November 2022.

Government of Cambodia. n.d.b. "Leave No One Behind." IDPoor website. <<https://www.idpoor.gov.kh/>>. Accessed 28 November 2022.

Government of Türkiye. 2022. "E-Government." Government of Türkiye e-Government gateway. <<https://www.turkiye.gov.tr/non-citizens>>. Accessed 28 November 2022.

GS-NSPC. 2022. Key informant interview: ID-Poor and COVID-19 Cash Transfer programme. Microsoft Teams video call.

Gupta, Mark Sen. 2020. "What Is Digitization, Digitalization, and Digital Transformation?2 ARC Advisory Group website, 24 March. <<https://www.arcweb.com/blog/what-digitization-digitalization-digital-transformation>>. Accessed 28 November 2022.

Hadi, Aulia. 2018. "Bridging Indonesia's Digital Divide: Rural-Urban Linkages?" *Jurnal Ilmu Sosial Dan Ilmu Politik* 22(1): 17. <<https://doi.org/10.22146/jsp.31835>>. Accessed 28 November 2022.

Hammad, Maya. 2022. "Practitioner Note 1: Inclusive Targeting, Identification and Registration." *Research Report*, No. 67. Brasília and Amman: International Policy Centre for Inclusive Growth and United Nations Children's Fund Middle East and North Africa Regional Office. <http://ipcig.org/publication/31283?language_content_entity=en>. Accessed 28 November 2022.

Henry, Lester. 2019. *Bridging the Urban-Rural Digital Divide and Mobilizing Technology for Poverty Eradication: Challenges and Gaps*. St. Augustine, Trinidad and Tobago: University of the West Indies. <<https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2019/03/Henry-Bridging-the-Digital-Divide-2019.pdf>>. Accessed 28 November 2022.

Howe Law Firm. 2018. "Phone Metadata." Howe Law Firm website. <<https://www.howelawfirm.com/e-discovery-and-forensics/mobile-phone-evidence/phone-metadata/>>. Accessed 28 November 2022.

ICTMS/DSWD. 2022. Personal communication: Follow-up to the request for key informant interview relative to the approved research request of Ms. Perin Gabriela, 21 September.

ILO. 2021. "More than 4 Billion People Still Lack Any Social Protection, ILO Report Finds." International Labour Organization website, 1 September. <shorturl.at/pJU08>. Accessed 28 November 2022.

ILO and FAO. 2021. *Extending Social Protection to Rural Populations: Perspectives for a Common FAO and ILO Approach*. Geneva: International Labour Organization and Food and Agriculture Organization of the United Nations. <<https://doi.org/10.4060/cb2332en>>. Accessed 28 November 2022.

INDEC. 2010. "Composición y Distribución: Censo Nacional de Población, Hogares y Viviendas 2010: Población Urbana y Rural Por Provincia." Instituto Nacional de Estadística y Censos website. <<https://www.indec.gob.ar/indec/web/Nivel4-Tema-2-18-77>>. Accessed 28 November 2022.

Information and Communications Technology Management Service. 2022. Personal communication: Interview questions regarding the Philippines' Social Amelioration Programme (SAP) for the IPC-IG and FAO on digital innovations in delivering social protection in rural areas worldwide.

IPC-IG. 2021a. "Internal Document - Takaful 3." International Policy Centre for Inclusive Growth.

IPC-IG. 2021b. "Social Protection Responses to COVID-19 on the Global South." International Policy Centre for Inclusive Growth online dashboard. <<https://socialprotection.org/social-protection-responses-covid-19-global-south>>. Accessed 28 November 2022.

ISSA. 2020. "Artificial Intelligence in Social Security: Background and Experiences." International Social Security Association blog, 28 October. <shorturl.at/eGl46>. Accessed 28 November 2022.

ITU. 2021a. *Connectivity in the Least Developed Countries: Status Report 2021*. Geneva: International Telecommunication Union. <https://www.un.org/ohrlls/sites/www.un.org.ohrlls/files/21-00606_1_e_ldc-digital_connectivity-rpt_e.pdf>. Accessed 28 November 2022.

ITU. 2021b. *Measuring Digital Development: Facts and Figures 2021*. Geneva: International Telecommunication Union.

- ITU. 2022a. *Global Connectivity Report 2022*. Geneva: International Telecommunication Union. <<https://www.itu.int/hub/publication/d-ind-global-01-2022/>>. Accessed 28 November 2022.
- ITU. 2022b. "Digital Development Dashboard." International Telecommunication Union digital development dashboard. <<https://www.itu.int:443/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>>. Accessed 28 November 2022.
- Jenik, Ivo, Mehmet Kerse, and Louis de Koker. 2020. "Rapid Account Opening in a Pandemic: How to Meet AML/CFT Rules for Social Assistance Payments. COVID-19 Briefing: Insights for Inclusive Finance." Consultative Group to Assist the Poor website. <<https://www.cgap.org/research/covid-19-briefing/rapid-account-opening-pandemic>>. Accessed 28 November 2022.
- Jordan Times. 2020. "Daily Wage Workers to Receive 2nd Phase of Cash Assistance Sunday - Jordan's National Aid Fund." *Jordan Times*, 10 June. <<https://www.zawya.com/en/economy/daily-wage-workers-to-receive-2nd-phase-of-cash-assistance-sunday-jordans-national-aid-fund-os2sxsbz>>. Accessed 28 November 2022.
- Lee, Hee Yun, Shaheen Kanthawala, Eun Young Choi, and Young Sun Kim. 2021. "Rural and Non-Rural Digital Divide Persists in Older Adults: Internet Access, Usage, and Attitudes toward Technology." *Gerontechnology* 20(2): 1–9. <<https://doi.org/10.4017/gt.2021.20.2.32-472.12>>. Accessed 28 November 2022.
- Leite, Phillippe, Tina George, Changqing Sun, Theresa Jones, and Kathy Lindert. 2017. "Social Registries for Social Assistance and Beyond: A Guidance Note & Assessment Tool." *Social Protection & Labour Discussion Paper*, No. 1704. Washington, DC: World Bank. <<https://documents1.worldbank.org/curated/ar/698441502095248081/pdf/117971-REVISED-PUBLIC-Discussion-paper-1704.pdf>>. Accessed 28 November 2022.
- Lindert, Kathy, Tina George Karippacheril, Inés Rodríguez Caillava, and Kenichi Nishikawa Chavez. 2020. *Sourcebook on the Foundations of Social Protection Delivery Systems*. Washington, DC: World Bank. <<https://doi.org/10.1596/978-1-4648-1577-5>>. Accessed 28 November 2022.
- Londoño-Vélez, Juliana, and Pablo Querubin. 2020. "The Impact of Emergency Cash Assistance in a Pandemic: Experimental Evidence from Colombia." *The Review of Economics and Statistics* 104(1): 157–165. <<https://direct.mit.edu/rest/article-abstract/104/1/157/98210/The-Impact-of-Emergency-Cash-Assistance-in-a?redirectedFrom=PDF>>. Accessed 28 November 2022.
- Lowe, Christina. 2022. *The Digitalisation of Social Protection before and since the Onset of Covid-19: Opportunities, Challenges and Lessons*. London: Overseas Development Institute. <https://cdn.odi.org/media/documents/ODI_Working_paper_Digitalisation_of_social_protection.pdf>. Accessed 28 November 2022.
- Lowe, Christina, Anna McCord, and Rodolfo Beazley. 2021. *National Cash Transfer Responses to Covid-19*. London: Overseas Development Institute.
- Ludeña, María Gabriela Palacio. 2021. "Falling through the Cracks: Digital Infrastructures of Social Protection in Ecuador." *Development and Change* 52(4): 805–828. <<https://doi.org/10.1111/dech.12664>>. Accessed 28 November 2022.
- Malli, Nina Christin, and Ole Doetinchem. 2016. *Identification of Poor Households*. Phnom Penh: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH.
- Markhof, Yannick. 2020. "Pakistan's Social Protection Response to the COVID-19 Pandemic: The Adequacy of Ehsaas Emergency Cash and the Road Ahead." *Working Paper*, No. 188. Brasília: International Policy Centre for Inclusive Growth, 58. <<shorturl.at/hpP39>>. Accessed 28 November 2022.

Mataracioglu, Tolga. 2022. "Understanding the Importance of the Turkish Information and Communication Security Guide on Cybersecurity." *ISACA Journal 2*: 1–5. <<https://www.isaca.org/resources/isaca-journal/issues/2022/volume-2/understanding-the-importance-of-the-turkish-communication-security-guide-on-cybersecurity>>.

Accessed 28 November 2022.

McKay, Claudia, Gcinisizwe Mdluli, Milkah Chebii, and Victor Malu. 2020. *The Future of Government-to-Person (G2P) Payments: Innovating for Customer Choice in Kenya*. Washington, DC: Consultative Group to Assist the Poor.

<<https://www.findevgateway.org/case-study/2020/01/future-government-person-g2p-payments-innovating-customer-choice-kenya>>. Accessed 28 November 2022.

Merez, Arianne. 2020. "18 Million Families to Get Cash Aid under Philippines' Coronavirus Stimulus." ABS CBN News, 25 March. <<https://news.abs-cbn.com/business/03/25/20/18-million-families-to-get-cash-aid-under-philippines-coronavirus-stimulus>>. Accessed 28 November 2022.

Ministry of Agriculture, Livestock and Fishing. n.d.a. "Listado Padrón - ReNAF." Ministry of Agriculture, Livestock and Fishing website. <<https://renaf.magyp.gob.ar/padron/>>. Accessed 28 November 2022.

Ministry of Agriculture, Livestock and Fishing. n.d.b. "RENAF." Ministry of Agriculture, Livestock and Fishing website. <<https://renaf.magyp.gob.ar/>>. Accessed 28 November 2022.

Ministry of Digital Economy and Transformation. 2020. "GiveDirect-Novissi." Ministry of Digital Economy and Transformation website. <<https://novissi.gouv.tg/en/givedirect-novissi-2/>>. Accessed 28 November 2022.

Ministry of Digital Economy and Transformation. 2022a. Key informant interview: *Novissi* cash transfer programme. Microsoft Teams video call and written answers.

Ministry of Digital Economy and Transformation. 2022b. Personal communication: *Novissi* comme cas d'étude d'une bonne expérience de l'utilisation du numérique dans un programme de protection sociale', 25 September.

Ministry of Economy and Finances, and Ministry of National Education, Preschool and Sports. 2022. *Evaluation de l'impact Social (EIS) du Programme Tayssir*. Rabat: Ministry of Economy and Finances. <<https://www.finances.gov.ma/Publication/db/2022/EVALUATION%20DE%20LIMPACT%20SOCIAL%20TAYSSIR%202020-05-2022.pdf>>.

Accessed 28 November 2022.

Ministry of Family and Social Policy. 2022a. Key informant interview: Integrated Social Assistance Service Information System (ISAS). Microsoft Teams video call.

Ministry of Family and Social Policy. 2022b. Personal communication: Interview for IPC-IG/FAO study about ISAS, 2 August.

Ministry of Family and Social Policy. 2022c. Personal communication: IPC-IG/FAO study about Türkiye e-Devlet and ISAS, 20 September.

Ministry of Family and Social Policy, and World Bank. 2017. *Turkey's Integrated Social Assistance System*. Ankara: Ministry of Family and Social Policy. <https://www.aile.gov.tr/SYGM/PDF/Turkeys_integrated_social_assistance_system.pdf>. Accessed 28 November 2022.

Ministry of Gender, Labour and Social Development. 2022a. "Launch of the National Single Registry for Social Protection." Ministry of Gender, Labour and Social Development website. <<https://mglsd.go.ug/launch-of-the-national-single-registry/>>. Accessed 28 November 2022.

Ministry of Gender, Labour and Social Development. 2022b. "National Single Registry for Social Protection in Uganda." Ministry of Gender, Labour and Social Development website. <<http://154.72.196.50/>>. Accessed 28 November 2022.

Ministry of Gender, Labour and Social Development. 2022c. Key informant interview: National Single Registry. Microsoft Teams video call.

Ministry of Gender, Labour and Social Development. 2022d. Personal communication: Digital social protection: Uganda case study, 11 October.

Ministry of Planning. 2012. *Implementation Manual on the Procedures for Identification of Poor Households*. Phnom Penh: Ministry of Planning. <https://mop.idpoor.gov.kh/files/documents/IDPoor_Procedures_Rural.pdf>. Accessed 28 November 2022.

Miranda, Carolina de, Cristina Heisecke, and Mauricio Royg. 2021. "Social Protection Goes Digital: Lessons From an Innovative, WhatsApp-Driven Outreach Campaign in Paraguay." *NextBillion* blog, 24 February. <<https://nextbillion.net/social-protection-digital-innovative-whatsapp-paraguay/>>. Accessed 28 November 2022.

Nabaye, Tricia. 2022. "The-Future-of-Digital-Connectivity." *Monitor*, 6 May. <<https://www.monitor.co.ug/uganda/oped/commentary/the-future-of-digital-connectivity-3807200>>. Accessed 28 November 2022.

NAF. 2020a. *Annual Report 2020*. Amman: National Aid Fund.

NAF. 2020b. *Jordan Emergency Cash Transfer Project: Rapid Social Assessment*. Amman: National Aid Fund. <<https://takaful.naf.gov.jo/PDF/Rapid%20Social%20Assessment.pdf>>. Accessed 28 November 2022.

NAF. 2022. Key informant interview: *Takaful 2* programme. Microsoft Teams video call.

NAF. n.d.a. "Government Support Programs (Takaful 1 and Takaful 3)." National Aid Fund website. <shorturl.at/flvX4>. Accessed 28 November 2022.

NAF. n.d.b. "ةي ن طول اة ن و م ل ا ق و د ن ص." National Aid Fund website. <<https://takaful.naf.gov.jo/PublicPage/Index>>. Accessed 28 September 2022.

Narin, Sun. 2020. "Gov't Launches New Cash Transfer Scheme to Assist IDPoor Families During COVID-19." VOA Cambodia website, 25 June. <<https://www.voacambodia.com/a/govt-launches-new-cash-transfer-scheme-to-assist-id-poor-families-during-covid-19/5477022.html>>. Accessed 28 November 2022.

National Institute of Statistics. 2020. *General Population Census of Cambodia 2019. National Report on Final Census Results 2019*. Phnom Penh: National Institute of Statistics, Ministry of Planning. <<http://nis.gov.kh/nis/Census2019/Final%20General%20Population%20Census%202019-English.pdf>>. Accessed 28 November 2022.

Nuppun Research and Consulting Co. Ltd. 2021. *Performance Assessment of the Cash Transfer Program for Poor and Vulnerable Households during COVID-19*. Phnom Penh: General Secretariat for the National Social Protection Council and Deutsche Gesellschaft für Internationale Zusammenarbeit. <https://nspc.gov.kh/Images/GiZ_CT_Policy%20Brief_20210602_Design_Draft_2021_06_02_17_46_02.pdf>. Accessed 28 November 2022.

O'Donnell, Megan, Mayra Buvinic, and Shelby Bourgault. 2022. "A Core Set of WEE Indicators to Inform Digital Social Protection Payment Programs." *CGD Note*. Washington, DC: Center for Global Development.

OECD. 2018. "Bridging the Rural Digital Divide." *OECD Digital Economy Paper*, No. 265. Paris: OECD Publishing. <https://read.oecd-ilibrary.org/science-and-technology/bridging-the-rural-digital-divide_852bd3b9-en>. Accessed 28 November 2022.

OECD. 2019a. *Better Criteria for Better Evaluation: Revised Evaluation Criteria Definitions and Principles for Use*. Paris: Development Assistance Committee, Organisation for Economic Co-operation and Development. <<https://www.oecd.org/dac/evaluation/revised-evaluation-criteria-dec-2019.pdf>>. Accessed 28 November 2022.

OECD. 2019b. *Lessons from the EU-SPS Programme: Monitoring and Evaluating Social Protection Systems*. Paris: OECD Publishing, 62. <https://www.oecd.org/dev/inclusive-societies-development/Lessons_learned_M-E.pdf>. Accessed 28 November 2022.

Office of the Council of Ministers. 2020. "Selected Comments Samdech Techo Hun Sen, Official Launch of Cash Transfer Program for Poor and Vulnerable Households during Covid-19." Office of the Council of Ministers website, 24 June. <<https://pressocm.gov.kh/en/archives/66499>>. Accessed 28 November 2022.

Official Gazette. n.d. "Pantawid Pamilyang Pilipino Program." Official Gazette of the Republic of the Philippines website. <<https://www.officialgazette.gov.ph/programs/conditional-cash-transfer/>>. Accessed 12 September 2022.

Ohlenburg, Tim. 2020. *AI in Social Protection – Exploring Opportunities and Mitigating Risks*. Bonn: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH. <<https://www.adb.org/publications/ai-social-protection-exploring-opportunities-mitigating-risks>>. Accessed 28 November 2022.

Ohlenburg, Tim. 2022. *Social Protection in a Pandemic: Trends, Challenges & Technology*. Bonn: Deutsche Gesellschaft für Internationale Zusammenarbeit.

Oinas-Kukkonen, Harri, Pasi Karppinen, and Markku Kekkonen. 2021. "5G and 6G Broadband Cellular Network Technologies as Enablers of New Avenues for Behavioral Influence with Examples from Reduced Rural-Urban Digital Divide." *Urban Science* 5(3): 60. <<https://doi.org/10.3390/urbansci5030060>>. Accessed 28 November 2022.

Oliveira Neto, Alfredo de, and Roseni Pinheiro. 2013. "O que a saúde tem a ver com rádio comunitária?: uma análise de uma experiência em Nova Friburgo - RJ." *Ciência & Saúde Coletiva* 18 (February): 527–536. <<https://doi.org/10.1590/S1413-81232013000200024>>. Accessed 28 November 2022.

Pagnathun, Theng, Sabine Cerceau, and Emily deRiel. 2021. "Cambodia's Social Protection Response to COVID-19." *Policy in Focus* 19(1): 48. Brasília: International Policy Centre for Inclusive Growth. <https://ipcig.org/publication/30008?language_content_entity=en>. Accessed 28 November 2022.

Petry, Elisabeth. 2021. "How COVID-19 Has Affected Poverty in the Philippines." The Borgen Project website, 5 April. <<https://borgenproject.org/tag/social-amelioration-program-sap/>>. Accessed 28 November 2022.

Prause, Louisa, Sarah Hackfort, and Margit Lindgren. 2021. "Digitalization and the Third Food Regime." *Agriculture and Human Values* 38(3): 641–655. <<https://doi.org/10.1007/s10460-020-10161-2>>. Accessed 28 November 2022.

République Togolaise. 2022. "Cina Lawson views digitalization as key to her country's growth." République Togolaise website, 5 March. <shorturl.at/AMSU2>. Accessed 28 November 2022.

Riel, Emily de. 2017. "Leave No One behind: Insights from Cambodia's National Poverty Identification System." *German Health Practice Collection*. Berlin: Federal Ministry for Economic Cooperation and Development.

Rolon, Camila, Beatriz Burattini, Lucas Sato, Victor Thives, Louisa Wagner, Nicole Figueiredo, Arniela Rénique, and Mauricio Mireles. 2022. “Social Protection Response to COVID-19 in Rural LAC: Social and Economic Double Inclusion.” *Policy Research Brief*, No. 82. Brasília: International Policy Centre for Inclusive Growth. <http://ipcig.org/publication/31129?language_content_entity=en>. Accessed 28 November 2022.

Røpke, Inge, Toke Haunstrup Christensen, and Jesper Ole Jensen. 2010. “Information and Communication Technologies – A New Round of Household Electrification.” *Energy Policy* 38(4): 1764–1773. <<https://doi.org/10.1016/j.enpol.2009.11.052>>. Accessed 28 November 2022.

Sato, Lucas, Camila Rolon, Beatriz Burattini, Victor Thives, Louisa Wagner, Arniela Rénique, and Mauricio Mireles. 2022. “Social Protection Response to COVID-19 in Rural LAC: Protection and Promotion of Employment in the Agricultural Sector.” *Policy Research Brief*, No. 83. Brasília: International Policy Centre for Inclusive Growth. <http://ipcig.org/publication/31211?language_content_entity=en>. Accessed 28 November 2022.

Secretariat of Family Agriculture, Coordination and Territorial Development. 2018. *Resolución 34/2018*. Buenos Aires: Government of Argentina. <<https://www.boletinoficial.gob.ar/detalleAviso/primera/187555/20180703>>. Accessed 28 November 2022.

Sharpe, Joanne, and Valentina Barca. 2021. *Dynamic Social Protection: The Role of on Demand Updating*. London: Social Protection Approaches to COVID-19 Expert Advice Service (SPACE).

socialprotection.org. 2022a. “L’Appui Direct Aux Femmes Veuves (Direct Assistance to Widows).” Social Protection website. <<https://socialprotection.org/discover/programmes/l%E2%80%99appui-direct-aux-femmes-veuves-direct-assistance-widows>>. Accessed 28 November 2022.

socialprotection.org. 2022b. “Pantawid Pamilya, Pantawid Pamilyang Pilipino Programme, 4Ps.” Social Protection website. <<https://socialprotection.org/discover/programmes/pantawid-pamilya-pantawid-pamilyang-pilipino-programme-4ps>>. Accessed 28 November 2022.

socialprotection.org. 2022c. “Tayssir (Cash Transfer Programme for Children).” Social Protection website. <<https://socialprotection.org/discover/programmes/tayssir-cash-transfer-programme-children>>. Accessed 28 November 2022.

socialprotection.org. n.d. “Rice Subsidy Programme of the National Food Authority, NFA.” Social Protection website. <<https://socialprotection.org/discover/programmes/rice-subsidy-programme-national-food-authority-nfa>>. Accessed 26 September 2022.

Sreylin, Yim. 2022. “Government Extends Cash Aid for the Poor Programme by a Year.” *Khmer Times*, 7 October. <<https://www.khmertimeskh.com/501164017/government-extends-cash-aid-for-the-poor-programme-by-a-year/>>. Accessed 28 November 2022.

Statista. 2022. “Philippines: Number of Internet Users 2017-2026.” Statista website. <<https://www.statista.com/statistics/221179/internet-users-philippines/>>. Accessed 28 November 2022.

The Independent. 2022. “Uganda Rolls out National Single Registry for Social Protection.” *The Independent*, 16 August. <[shorturl.at/iNP08](https://www.independent.co.uk/news/world/africa/uganda-rolls-out-national-single-registry-for-social-protection-b1000000.html)>. Accessed 28 November 2022.

Transform. 2017. *Administration of Non-Contributory Social Protection: Delivery Systems - Manual for a Leadership and Transformation Curriculum On Building and Managing Social Protection Floors in Africa*. Transform. <[shorturl.at/xKLRW](https://www.transform.org/~/media/Transform/2017/06/20170620-Admin-Non-Contributory-Social-Protection-Delivery-Systems-Manual-for-a-Leadership-and-Transformation-Curriculum-On-Building-and-Managing-Social-Protection-Floors-in-Africa.pdf)>. Accessed 28 November 2022.

- Trendov, N.M., S. Varas, and M. Zeng. 2019. *Digital Technologies in Agriculture and Rural Areas - Briefing Paper*. Rome: Food and Agriculture Organization of the United Nations. <<https://www.fao.org/documents/card/en/c/CA4887EN/>>. Accessed 28 November 2022.
- Tulinayo, Fiona, Peter Ssentume, and Rovincer Najjuma. 2018. "Digital Technologies in Resource Constrained Higher Institutions of Learning: A Study on Students' Acceptance and Usability." *International Journal of Educational Technology in Higher Education* 15(1): 36. <<https://doi.org/10.1186/s41239-018-0117-y>>. Accessed 28 November 2022.
- TurkStat. 2020. "Turkish E-Government Gateway." Ankara: Turkish Statistical Institute. <<https://www.turksat.com.tr/sites/default/files/2020-07/turkish-e-government-catalog-en.pdf>>. Accessed 28 November 2022.
- TurkStat. 2021. *Household Information Technologies (BT) Usage Survey, 2021*. Turkish Statistical Institute website, 26 August. <[https://data.tuik.gov.tr/Bulten/Index?p=Survey-on-Information-and-Communication-Technology-\(ICT\)-Usage-in-Households-and-by-Individuals-2021-37437](https://data.tuik.gov.tr/Bulten/Index?p=Survey-on-Information-and-Communication-Technology-(ICT)-Usage-in-Households-and-by-Individuals-2021-37437)>. Accessed 28 November 2022.
- UBOS. 2014. *Uganda National Household Survey 2012/13*. Kampala: Uganda Bureau of Statistics. <https://www.ubos.org/wp-content/uploads/publications/03_20182012_13_UNHS_Final_Report.pdf>. Accessed 28 November 2022.
- UNDESA. 2018. *World Urbanization Prospects: 2018 Revision*. New York: United Nations Department of Economic and Social Affairs. <shorturl.at/acgES>. Accessed 28 November 2022.
- UNDESA. 2021a. *World Social Report 2021: Reconsidering Rural Development*. New York: United Nations Department of Economic and Social Affairs. <<https://www.un.org/development/desa/dspd/world-social-report/2021-2.html>>. Accessed 28 November 2022.
- UNDESA. 2021b. "Leveraging Digital Technologies for Social Inclusion." United Nations Department of Economic and Social Affairs website, 18 February. <<https://www.un.org/development/desa/dspd/2021/02/digital-technologies-for-social-inclusion/>>. Accessed 28 November 2022.
- UNDP Asia-Pacific Regional Innovation Centre. 2020. "A COVID Cash Transfer Programme That Gives More Money to Women in Togo." *Medium* blog, 18 August. <<https://undp-ric.medium.com/cina-lawson-a-covid-cash-transfer-programme-that-gives-more-money-to-women-in-togo-2386c5dff49>>. Accessed 28 November 2022.
- UN ESCAP. 2019. "Turkey's Integrated Social Assistance Service Information System (ISAS)." Social Protection Toolbox website. <<https://www.socialprotection-toolbox.org/practice/turkeys-integrated-social-assistance-service-information-system-isas>>. Accessed 28 November 2022.
- United Nations. 2019. *Report of the Special Rapporteur on Extreme Poverty and Human Rights*. New York: United Nations General Assembly. <<https://documents-dds-ny.un.org/doc/UNDOC/GEN/N19/312/13/PDF/N1931213.pdf>>. Accessed 28 November 2022.
- UN Türkiye. 2020. *COVID-19 Socio-Economic Impact Assessment Report*. Ankara: United Nations. <https://turkey.un.org/sites/default/files/2021-04/UN%20Turkey%20Covid-19%20Socio-Economic%20Impact%20Assessment%20Report_vf_1.pdf>. Accessed 28 November 2022.
- UNICEF. 2020. *Expanding Social Protection Coverage in Times of COVID-19*. New York: United Nations Children's Fund. <[https://www.unicef.org/philippines/media/2341/file/Brief:%20Expanding%20Social%20Protection%20Coverage%20in%20the%20time%20of%20COVID-19%20\(Philippines\).pdf](https://www.unicef.org/philippines/media/2341/file/Brief:%20Expanding%20Social%20Protection%20Coverage%20in%20the%20time%20of%20COVID-19%20(Philippines).pdf)>. Accessed 28 November 2022.

UNICEF Cambodia. 2020. "COVID-19 Cash Transfer Programme Helping Families with the Most Basic Needs." United Nations Children's Fund website, 27 July. <<https://www.unicef.org/cambodia/stories/covid-19-cash-transfer-programme-helping-families-most-basic-needs>>. Accessed 28 November 2022.

UNICEF Cambodia. 2022. Personal communication: Interview for IPC-IG/FAO study about Cambodia ID-Poor, 14 September.

UNICEF and Jordan Strategy Forum. 2020. *Jordan's National Social Protection Response During COVID-19*. Amman: United Nations Children's Fund and Jordan Strategy Forum. <<https://www.unicef.org/jordan/media/3921/file/Jordan%27s%20National%20SP%20Response%20During%20COVID-%20UNICEF%20%20JSF.pdf>>. Accessed 28 November 2022.

Universal Postal Union. n.d. *Morocco Post Digital Answer to the COVID-19 Crisis*. Berne, Switzerland: Universal Postal Union. <<https://www.upu.int/getmedia/4b220997-b6cd-4602-96c7-b0aa1e23107a/moroccoPostDigitalAnswerToTheCovid19CrisisEn.pdf>>. Accessed 28 November 2022.

Vasilescu, Maria Denisa, Andreea Claudia Serban, Gina Cristina Dimian, Mirela Ionela Aceleanu, and Xose Picatoste. 2020. "Digital Divide, Skills and Perceptions on Digitalisation in the European Union—Towards a Smart Labour Market." *PLoS ONE* 15(4): e0232032. <<https://doi.org/10.1371/journal.pone.0232032>>. Accessed 28 November 2022.

Wajcman, Judy, Erin Young, and Anna Fitzmaurice. 2020. "The Digital Revolution: Implications for Gender Equality and Women's Rights 25 Years after Beijing." *Discussion Paper*. New York: UN Women. <<https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2020/The-digital-revolution-Implications-for-gender-equality-and-womens-rights-25-years-after-Beijing-en.pdf>>. Accessed 28 November 2022.

World Bank. 2019. "Pushing the Limits of Innovation, Improving Social Protection and Livelihoods in Côte d'Ivoire." World Bank blog, 12 April. <<https://www.worldbank.org/en/results/2019/04/12/pushing-the-limits-of-innovation-improving-social-protection-and-livelihoods-in-cote-divoire>>. Accessed 28 November 2022.

World Bank. 2020a. *Project Appraisal Document on a Proposed Loan in the Amount of US\$350 Million and a Proposed Grant in the Amount of US\$24.17 Million Equivalent from the Jordan Inclusive Growth and Economic Opportunities Multi-Donor Trust Fund to the Hashemite Kingdom of Jordan for an Emergency Cash Transfer Covid-19 Response Project*. Project Appraisal Document PAD3898. Washington, DC: World Bank. <<shorturl.at/rHOZ9>>. Accessed 28 November 2022.

World Bank. 2020b. *Scaling up Social Assistance Payments as Part of the COVID-19 Pandemic Response*. Washington, DC: World Bank.

World Bank. 2020c. *Project Information Document (PID) PIDA29177*. Washington, DC: World Bank. <https://ewdata.rightsindevelopment.org/files/documents/74/WB-P173974_apWxBLV.pdf>. Accessed 28 November 2022.

World Bank. 2020d. *Project Appraisal Document on a Proposed Loan in the Amount of US\$350 Million and a Proposed Grant in the Amount of US\$24.17 Million Equivalent from the Jordan Inclusive Growth and Economic Opportunities Multi-Donor Trust Fund*. Project Appraisal Document PAD3898. Washington, DC: World Bank.

World Bank. 2021. "Prioritizing the Poorest and Most Vulnerable in West Africa: Togo's Novissi Platform for Social Protection Uses Machine Learning, Geospatial Analytics, and Mobile Phone Metadata for the Pandemic Response." World Bank website, 13 April. <<https://www.worldbank.org/en/results/2021/04/13/prioritizing-the-poorest-and-most-vulnerable-in-west-africa-togo-s-novissi-platform-for-social-protection-uses-machine-l>>. Accessed 28 November 2022.

World Bank. 2022a. *Charting a Course Towards Universal Social Protection: Resilience, Equity, and Opportunity for All*. Washington, DC: World Bank. <<https://openknowledge.worldbank.org/handle/10986/38031>>. Accessed 28 November 2022.

World Bank. 2022b. "G20 Financial Inclusion Indicators: Morocco." World Bank website. <<https://datatopics.worldbank.org/g20fidata/country/morocco>>. Accessed 28 November 2022.

World Bank. 2022c. "G20 Financial Inclusion Indicators: Togo." World Bank website. <<https://datatopics.worldbank.org/g20fidata/country/togo>>. Accessed 28 November 2022.

World Bank. 2022d. *Management Information Systems*. Washington, DC : World Bank. <http://web.worldbank.org/archive/website01506/WEB/IMAGES/11_MIS.PDF>. Accessed 28 November 2022.

World Bank. 2022e. *The Role of Digital in the COVID-19 Social Assistance Response*. Washington, DC: World Bank. <<https://doi.org/10.1596/38104>>. Accessed 28 November 2022.

World Bank. 2022f. "World Development Indicators." World Bank website. <<https://databank.worldbank.org/source/world-development-indicators>>. Accessed 28 November 2022.

World Bank Group. 2022. *Leveraging Technology for Program Delivery: Scaling up NGO Innovations*. Washington, DC: World Bank.

Yongchun, Yang. 2022. "Digital Village Construction Drives Modernization of Agriculture and Rural Areas in China." *People's Daily Online*. <<http://en.people.cn/n3/2022/0330/c90000-10077617.html>>. Accessed 28 November 2022.

Annex — Methodology

To examine the potential and limitations of digital innovations for social protection delivery in rural areas, especially in the post-pandemic period, this report relied on a series of steps, which ranged from the mapping of programmes to conducting key informant interviews on selected case studies. These steps will be described briefly in this section.

First, to lay the groundwork for the report and the case study selection, the authors started by reviewing the use of digital technologies for the social protection response to the pandemic in rural areas around the globe. The IPC-IG's (2021b) mapping of social protection responses to the COVID-19 pandemic in the global South was the main information source for this review. This initial mapping already included more than 1,000 programmes, some of which may have been terminated by the time this report was developed. Given the mapping's limitations in identifying rural responses first identified by Rolon et al. (2022), the authors conducted an additional mapping of social protection programmes that explicitly included rural populations—being either universal or rural programmes—and used an ICT tool at some point in the benefit delivery chain.

To identify digital programmes, the team looked for social protection programmes that used ICTs for beneficiary outreach and registration, enrolment, benefit delivery and the GRM. The aim was not to identify the measures that became digital during the pandemic, but merely those that happened to use digital technologies during implementation. As for targeting, both universal programmes and programmes that covered rural populations, agricultural workers, indigenous populations, migrants and self-employed workers were included in the pool for the case study selection. Only national programmes with significant government participation were considered. To select the case studies from the pool of mapped programmes, the authors based their decision on discussions with FAO headquarters, regional offices and country offices.

Case studies were chosen based on the following criteria, which the selected countries or programmes had to fulfil at least in part:

- Social protection programmes and tools **targeting vulnerable groups** within the rural population, such as elderly people, women, self-employed workers, indigenous populations and fishers, among others
- Social protection measures and tools deemed not to be merely temporary responses to the pandemic, including those linked to **pre-COVID programmes and structures**
- Programmes with low **coverage** and **adequacy** were avoided
- **Geographic diversity**
- **Use of digital tools and innovations at different steps along the social protection delivery chain**
- Use of **digital technologies in innovative ways** to reach rural populations
- Measures **promoting the digitalisation of rural areas**
- Cases that could help to highlight the **risks associated with digitalisation**.

Due to language barriers and a lack of full access to certain countries' government websites, the desk research must have had gaps in information. To circumvent this issue, key informant interviews were conducted with experts from each case study country or programme.

The analysis of the case studies builds on desk research and semi-structured interviews with high-ranking government officials involved in the implementation of social protection programmes—and, when possible, of digital innovations associated with those programmes. To identify and contact the key informants, the authors relied primarily on support from FAO country offices and—when necessary—contacts with other United Nations agencies in the respective countries. The primary aim of the key informant interviews was to better understand the contributions of the digital innovation in question to the respective social protection programme or tool, focusing mostly on only one or two steps of the social protection delivery chain. The key informant interviews were also used to close gaps in information encountered during the desk research, and some key informants were also available to clarify additional questions in writing.



International Policy Centre for Inclusive Growth (IPC-IG)

SEPS 702/902, Centro Empresarial Brasília 50, Torre B — Asa Sul
70.390-025 Brasília/DF, Brazil +55 61 2105 5000

