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# Digitising the social safety net: Lessons from Indonesia

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ANALYSIS

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Cover image: Digital payment systems have the potential to enhance transparency in financial transactions with local farmers and food producers, fostering accountability and fair market practices (Getty Images)

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## Key findings

- The digitisation of social safety nets can help drive inclusion and reduce poverty while fostering more resilient social and economic development. Indonesia's experience offers important lessons for other countries in how to do so.
- There is no one-size-fits-all approach. Indonesia learned from international examples while developing specific solutions tailored to its needs. Experimentation, sustained political will, and keeping pace with fast-changing technology have been key to its success.
- A well-executed digitised social safety net offers direct operational gains, including by combatting inefficiency, fraud, and corruption in the provision of social welfare, many spin-off benefits such as expanding digital and financial literacy in society, and contributes to macro-level stability by managing economic shocks and enhancing public trust in government.
- The next steps in Indonesia's journey should focus on incorporating digital ID and data analytics to improve the performance and integrity of an expanded social safety net system. Strengthening cybersecurity and data protection will also be critical. A key political test will be the recertification and eligibility agenda, to graduate citizens from social assistance programs once they are no longer in need of them.



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## Executive summary

This analysis paper examines Indonesia's journey in digitising its social safety net, emphasising the scale and long-term nature of the initiative. It offers insights for other countries undertaking similar initiatives and poised to leverage future digital advancements. Central to Indonesia's success is unwavering government commitment, demonstrated through high-level political will and collaborative efforts across government agencies, regulators, local governments, the private sector, and international development partners. Indonesia's approach highlights the value of tailored solutions and continuous experimentation rather than simply replicating the models of others. Sustaining progress requires ongoing commitment and adaptive strategies to navigate evolving government agendas and advancements in technology.

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# Introduction

Social safety nets shield individuals from social and economic shocks by preventing, reducing, and addressing risks. They empower citizens amid persistent poverty, rising inequality, disasters, and climate change impacts.<sup>1</sup> Social safety net programs include social assistance (such as cash transfers and food vouchers) and social insurance (such as health and employment insurance). This analysis paper focuses on social assistance programs.

Digitised social safety net systems have emerged as powerful tools for alleviating poverty and fostering inclusive development.<sup>2</sup> The progress and widespread use of digital technology have enhanced the capability of social assistance programs to fulfil these objectives. This advancement has allowed developing countries to bypass traditional forms of social assistance, typically effective only in high-income countries.

*After decades of robust economic growth and solid poverty reduction, Indonesia is now an upper-middle income country in which further progress against poverty and vulnerability requires more targeted policy interventions.*

Indonesia provides an important lesson in the digitisation of social safety nets. While there is much international focus on the success stories of India (*Aadhaar*)<sup>3</sup> and Brazil (*Bolsa Familia*)<sup>4</sup>, Indonesia's positive experience and the factors that shaped it have received relatively little attention. This paper seeks to rectify this and provide insights for Indonesia and other developing countries looking to chart their path towards digitising social safety nets and using this as a catalyst for more inclusive and resilient social and economic development.

After decades of robust economic growth and solid poverty reduction, Indonesia is now an upper-middle income country in which further progress against poverty and vulnerability requires more targeted policy interventions. Indonesia has a long history of inefficient and untargeted social assistance programs, particularly for subsidised energy and rice, that have been subject to fraud, corruption, and waste. In recent years, Indonesia has implemented more targeted social assistance programs supported by a social registry or unified database. These programs include conditional cash transfers, rice for the poor, electricity subsidies, and non-contributory health insurance.

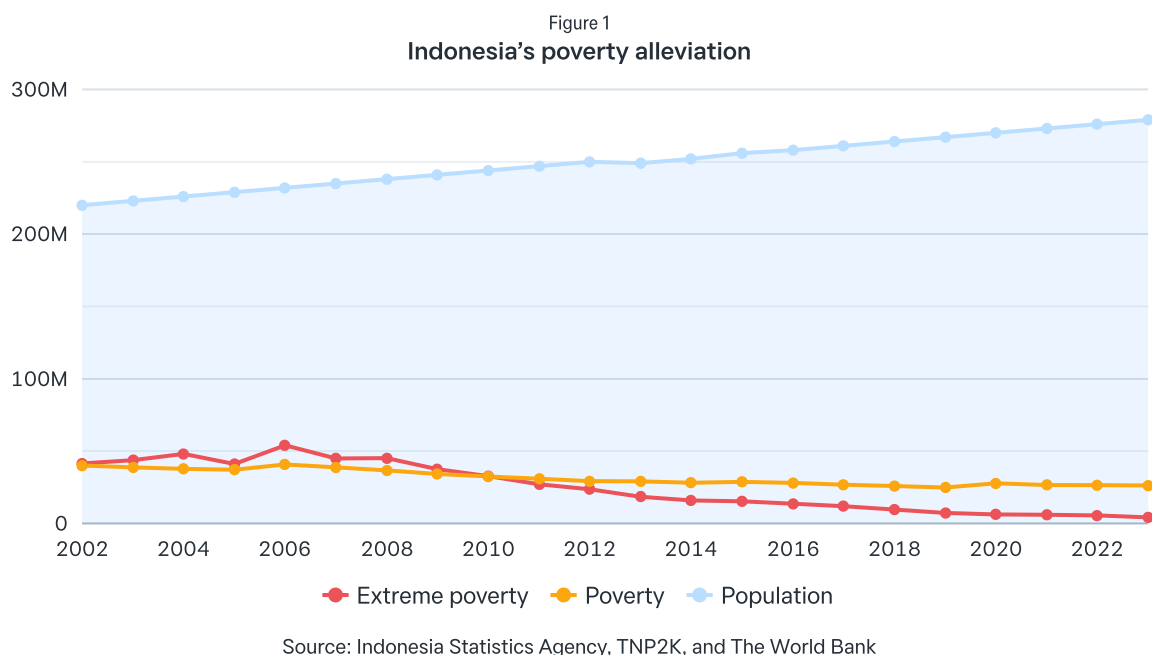
Many Indonesian social assistance programs have now been digitised, while others are in the process of being so. Indonesia has switched from transfers of physical cash to online bank payments, from in-kind food assistance to e-



vouchers, and introduced a pre-employment card to provide portable training subsidies using “liveness” verification technology through specific instructions such as winking (more below on this topic).

Digitisation in Indonesia has not only improved the performance of these programs but also strengthened political support, allowing the government to direct a major share of its limited fiscal resources towards poverty alleviation and inclusive development. Indonesia’s social safety net has in turn helped to decrease poverty, including during the Covid-19 pandemic, while there have been important and mutually reinforcing spin-off benefits in terms of increasing financial inclusion and access to formal identification. In 2020–21, a substantial portion of Indonesia’s population — 147.5 million or 54.6 per cent — benefited from improved or new social assistance programs, with the majority of them benefiting from digitisation.<sup>5</sup>

Indonesia has made impressive strides in its mission to eliminate extreme poverty (defined as living on less than US\$1.90 per day), a longstanding challenge for the country. The extreme poverty rate plummeted from 19 per cent in 2002 to 1.5 per cent in 2023.<sup>6</sup> Figure 1 illustrates progress in poverty alleviation from 2002 to 2023.



How has Indonesia done it? This paper argues that the key lessons from Indonesia’s experience are that there is no one-size-fits-all approach, and that ongoing experimentation, learning, and improvement are vital.

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# The potential of digitised social safety nets

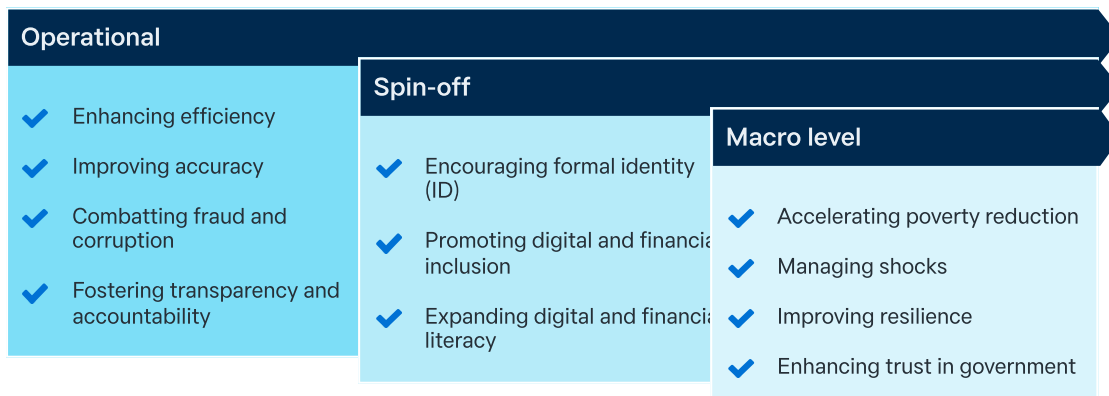
Historically inadequate investment in social safety nets in many Asia-Pacific countries has left more than half the region’s population without coverage.<sup>7</sup> However, the Covid-19 pandemic sparked a shift as governments increasingly recognised the pivotal role of social protection in reducing poverty and enhancing resilience against natural disasters and other crises. Countries with robust safety net systems have demonstrated greater ability to respond to shocks.<sup>8</sup>

Nonetheless, the expansion of safety net systems during the pandemic was constrained by multiple factors, including the limited fiscal resources of governments, the practicalities of analogue approaches (e.g. difficulties reaching more remote communities), concerns about inefficiency, poor targeting, “leakage” (i.e. fraud and corruption), political opposition to income redistribution, and, conversely, the political popularity of existing untargeted universal subsidies (e.g. for energy) soaking up government funds.

All this is rapidly changing. Advancements in digital technology and access have enhanced the potential of social assistance programs to play a decisive role in promoting more inclusive and resilient social and economic development. Figure 2 summarises the benefits of a well-executed digitised social safety net across three dimensions, expressed in terms of operational, spin-off, and macro-level benefits.

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Figure 2  
The benefits of digitised social safety nets



Source: Lowy Institute

## **Operational**

Digitisation enhances the performance of social safety net programs by streamlining administrative processes, removing physical cash or dedicated disbursement/cash-out points (e.g. bank branches), and eliminating “middlemen” (e.g. food distributors), thus reducing inefficiency, waste, and fraud. Accuracy in targeting beneficiaries is also improved through the use of an integrated database of digital IDs of eligible beneficiaries, electronic and/or biometric identification, and data analytics, thereby ensuring assistance reaches those who need it while reducing fraud risks and enhancing public trust. Digitised systems can also be used to directly combat fraud and corruption by automatically generating electronic records and enabling data analytics to identify fraudulent activities. In addition, transparency and accountability can be enhanced through digital initiatives such as online complaint mechanisms and broader confidence in the superior integrity of a digitised system.

## **Spin-off gains**

Digitisation also provides numerous spin-off benefits that can be beneficial for reform agendas. The requirement for formal identification to enrol in social assistance programs encourages individuals to obtain national IDs. In many cases, the programs act as the primary avenue through which people are introduced to the importance and benefits of having formal identification. Similarly, programs that use digital technology and bank accounts promote digital and financial literacy, fostering more inclusive digital access. Improved access to formal IDs and digital financial services in turn expands the potential for greater advancements in digitised social safety nets.

## **Macro-level**

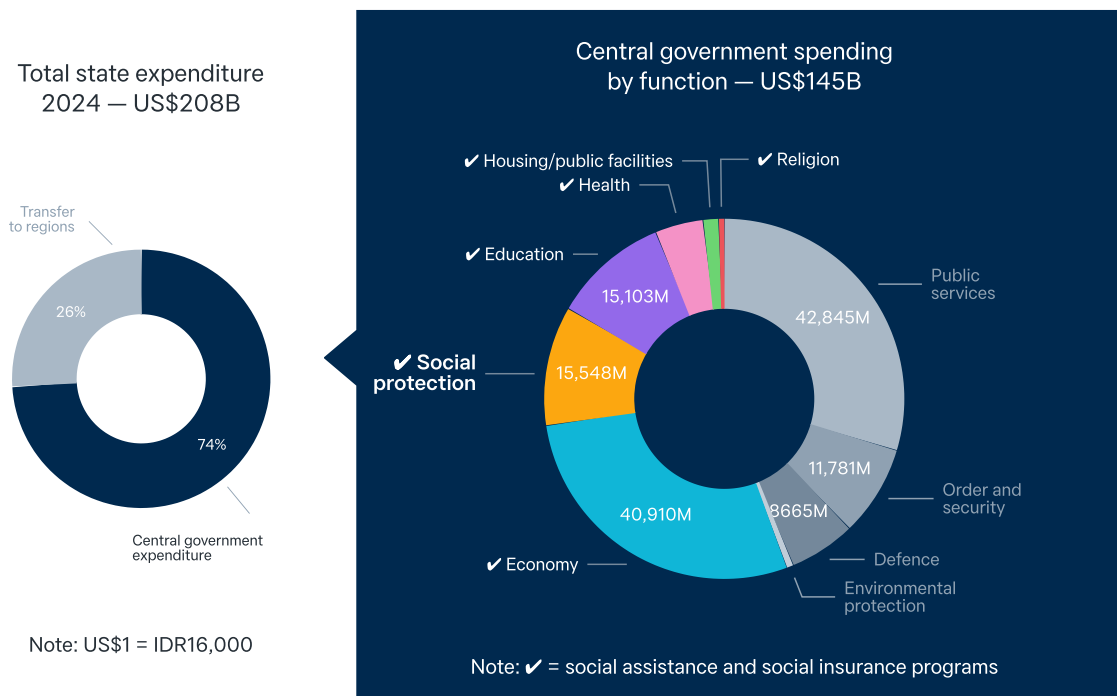
The digitised system offers significant macro-level benefits in contemporary development. It accelerates poverty reduction by efficiently targeting assistance, supports human capital development and economic growth by investing in the health and education of individuals and households, assists in effectively managing shocks such as economic downturns or natural disasters, and improves resilience by enabling rapid adaptation to socio-economic challenges. By demonstrating transparency, efficiency, and responsiveness in government spending, the system also garners public support and trust, essential for sustaining long-term social welfare initiatives and promoting inclusive, resilient societies.

# Indonesia's social assistance programs

Indonesia's social assistance programs target essential aspects such as food, health, education, and energy. The programs are primarily aimed at the 40 per cent of the population at the bottom of the socio-economic pyramid.<sup>9</sup>

Social protection has high status in Indonesian government policy, evident in its significant budget allocation — ranking third after public services and the economy, and exceeding funds for defence and security. In 2024, out of a total state expenditure of US\$208 billion, approximately 15 per cent has been designated for social protection initiatives (including social assistance and social insurance programs), as illustrated in Figure 3.<sup>10</sup> The total budget allocated to these programs are spread and implemented across various functions and ministries, including social affairs, economy, education, energy, health, housing, public services, and religion. From 2013 to 2023, Indonesia consistently allocated an average of 16 per cent of its state budget to social protection.

Figure 3  
Indonesia's social protection budget



Source: Indonesia Ministry of Finance 2024

However, a substantial portion of the allocated budget is directed towards inefficient energy subsidies for fuel and cooking gas (which also encourage carbon-intensive development). Energy subsidies constitute 36 per cent of social protection expenditure, followed by non-energy subsidies at 16 per cent. Efforts are underway to reform and digitise these subsidies, including reallocating untargeted energy subsidies. While many programs' disbursements have been digitised, integrating these programs across ministries remains a priority to enhance coverage of vulnerable populations and improve program efficiency.

Table 1 outlines Indonesia's primary social assistance programs, along with several programs that have been digitally distributed, based on government reporting in 2022. Those that have been digitised are listed first and highlighted in blue.

Table 1  
Indonesia's social safety nets programs

Program	2022 Budget (US\$ million)	Beneficiaries	Notes
National Health Insurance	3098	96.7 million individuals	Insurance premium assistance
Groceries Card	3008	18.7 million families	Food assistance; electronic vouchers
Family Hope Program (PKH)	1914	9.8 million families	Conditional cash transfer; savings account
Smart Indonesia Program (PIP)	741	10.9 million school students	Education fund; savings account
Pre-Employment Card	733	16.4 million individuals (2020-2022)	Training and incentive funds
Bidikmisi (university)	646	710,700 university students	Education fund; savings account
Energy subsidies	8933	Goods subsidies	Price reduction: Electricity for 39.2 million customers; 3kg cooking gas (LPG) for 3.3 million people; fuel subsidy
Non-energy subsidies	4020	Goods subsidies	Fertiliser, credit programs, public service obligation
Village Direct Cash Assistance	1920	8 million families	Cash transfer
<b>Total</b>	<b>25,013</b>		

■ Digitised ■ Not yet digitised

Source: Indonesia Ministry of Finance and Indonesia Statistics Agency

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# Digitisation of Indonesia's social safety net

Three social assistance programs discussed here showcase Indonesia's experience and progress with digitisation. First, Indonesia's Rice for the Poor program, which has transitioned from physically distributing rice to an e-voucher system. Second, the Family Hope Program (PKH), Indonesia's conditional cash transfer program, which has evolved from conventional cash disbursements to online payments via savings accounts. And third, the recent introduction of a pre-employment support program (*Program Kartu Prakerja*), which has jumped straight to digitisation, using online savings accounts or digital wallets, enabled by the pioneering application of live facial recognition technology.

## Food assistance: From rice to e-vouchers

The majority of Indonesians depend on rice as their primary food staple, and they regard it as the government's responsibility to ensure the availability and quality of affordable rice. After the 1997–98 Asian Financial Crisis, Indonesia introduced the Special Market Operation for Rice, which subsidised rice distribution. In 2002, it became the Rice for the Poor program (*Raskin*), aiming to give 15 kilograms of subsidised rice per month to poor households. The main challenges were in accurately targeting beneficiaries and managing distribution costs to deliver rice to village disbursement locations.<sup>11</sup> Beneficiary selection is done through village-level deliberations, with villages tasked with compiling lists of recipients. In 2015, Rice for the Poor became Rice for Prosperous Families (*Rastra*), providing ten kilograms of rice per month and focused on reducing expenses and improving targeting.

The *Rastra* program suffered from inaccuracies in targeting, reduced amounts of rice per household, long wait times, and poor rice quality, necessitating further reform. In response, the government transitioned to the Non-Cash Food Assistance Program (*Bantuan Pangan Non-Tunai*—BPNT) in 2017. BPNT uses non-cash distribution by providing special savings accounts with digital wallets for beneficiaries and e-vouchers to buy rice and eggs. Beneficiaries use debit cards with an e-voucher digital wallet exclusively for purchasing selected food items at designated shops equipped with point-of-sale devices. The cards integrate digital wallets with a savings feature called a combo card, as illustrated in Figure 4. The card offers recipients financial flexibility and greater economic stability by enhancing access to food *and* savings for future needs.



Each month, eligible beneficiaries receive US\$7, which is transferred directly to a digital wallet linked to their savings account.

Figure 4  
Indonesia's combo card



Source: TNP2K and Indonesian state-owned banks

BPNT offers households the option to purchase better quality rice and protein-rich foods such as eggs using e-vouchers. On average, BPNT recipients receive 45 per cent more aid than *Rastra* beneficiaries, with improved targeting benefiting the poorest communities.<sup>12</sup> Moreover, BPNT incurs lower administration costs due to reduced distribution expenses. Switching from traditional in-kind benefits to e-vouchers has been shown to provide better-targeted aid to poorer households, as evidenced by studies indicating that households received significantly greater assistance through e-vouchers compared to traditional methods.<sup>13</sup>

In 2020, BPNT evolved into the *Sembako* (basic food) program, and the value of its e-vouchers was increased to US\$10 a month via a debit card, known as the groceries card, provided by state-owned banks. This program expands the use of funds to cover various carbohydrate, protein, and vitamin sources such as corn, chicken, beef, nuts, vegetables, and fruit. During the Covid-19 pandemic, the government used this program as a channel to distribute stimulus funds, increasing the value of aid to US\$13. In 2023, the poverty line per household in Indonesia was US\$167 a month. The food program covered eight per cent of monthly food expenses in poorer households. Not a bad result considering that that food alone accounts for up to 75 per cent of spending in poorer households.<sup>14</sup>



A beneficiary receives rice assistance (Hilman Palaon)

Social assistance programs are susceptible to corruption. For instance, in 2021 the Minister of Social Affairs was found guilty and sentenced to 12 years in prison for his involvement in corrupt practices linked to the basic food program.<sup>15</sup> Although the digitised system cannot provide absolute protection against corruption, its ability to trace and deter fraud represents a significant advancement that is expected to reduce potential for corruption in the future.

### **Family Hope Program: From cash to online banking**

In 2007, the Indonesian government launched the Family Hope Program (PKH), the country's first-ever conditional cash transfer program. PKH was created to help economically vulnerable families, specifically targeting pregnant women, new mothers, breastfeeding women, and families with children. It aims to reach ten million beneficiary families from the bottom 20 per cent socio-economic decile. To receive PKH assistance, mothers must ensure their children attend school routinely, get regular health check-ups, and maintain good nutrition and a healthy lifestyle. The program has also expanded to include the elderly and individuals with disabilities. The program offers households up to US\$230 annually. PKH has had a multifaceted impact: it has boosted educational attainment among poor families, generated multiplier effects through self-sustenance, enhanced the health of mothers and children, and stimulated local economies.<sup>16</sup>

PKH funds were initially distributed via post offices, with recipients receiving cash payments. Since 2017, the program has transitioned to a non-cash system,

transferring funds directly into beneficiaries' savings accounts. To facilitate this transition, state-owned banks were entrusted with fund distribution. The account-opening process has been streamlined, conducted collectively and centrally. Those registered in the program verify their know-your-customer (KYC, which verifies beneficiary identity) requirement electronically, and the system is interoperable with the national ID database for savings account opening. Banks provide beneficiaries with savings books and debit cards with combo card features (see Figure 4, above). This approach grants beneficiaries the flexibility to withdraw funds from ATMs, bank branches, or bank agents while allowing them to save some or all funds for future use. The digitised disbursement has proven more efficient than cash payments, facilitating greater financial inclusion and empowerment for women.<sup>17</sup>

### **Pre-employment card: Advanced and portable**

The Pre-Employment Card Program (*Program Kartu Prakerja*)<sup>18</sup> has drawn on insights from other disbursement programs and pilot projects, leading to significant strides in embracing digital transformation. Prospective beneficiaries perform online registration according to specified criteria, and are selected for eligibility by the program administrator. As with the PKH, the registration system is integrated with the national ID database for KYC checks. A notable addition is the incorporation of “liveness” detection, ensuring the authenticity of each registrant by requiring them to follow specific instructions, such as winking, thereby verifying their status as real individuals.

Beneficiaries of this program receive training funds, job search incentives, and rewards for completing evaluation surveys. Eligible individuals can participate in the program only once and receive assistance funds contingent on their progress. The training fund, totalling US\$233 per person, is credited to the recipient's Pre-Employment Card virtual account specifically designated for training expenses. The training program connects with digital education platforms to offer participants skill development opportunities through online learning. After completing training, participants are eligible to receive a one-off job search incentive of US\$40, which is transferred to either a traditional bank savings account or an electronic money account offered by fintechs. Furthermore, participants who fill out evaluation surveys are rewarded with a US\$7 incentive, deposited into the participant's preferred account once the survey is completed.

The program has reportedly boosted participants' likelihood of securing new employment by 18 per cent and increased the chance of them starting their own business by up to 30 per cent. Beneficiaries also saw a notable increase in monthly income, ranging from 17–21 per cent, equivalent to a rise of US\$15–20 compared to non-beneficiaries, not including financial aid received through the program.<sup>19</sup>

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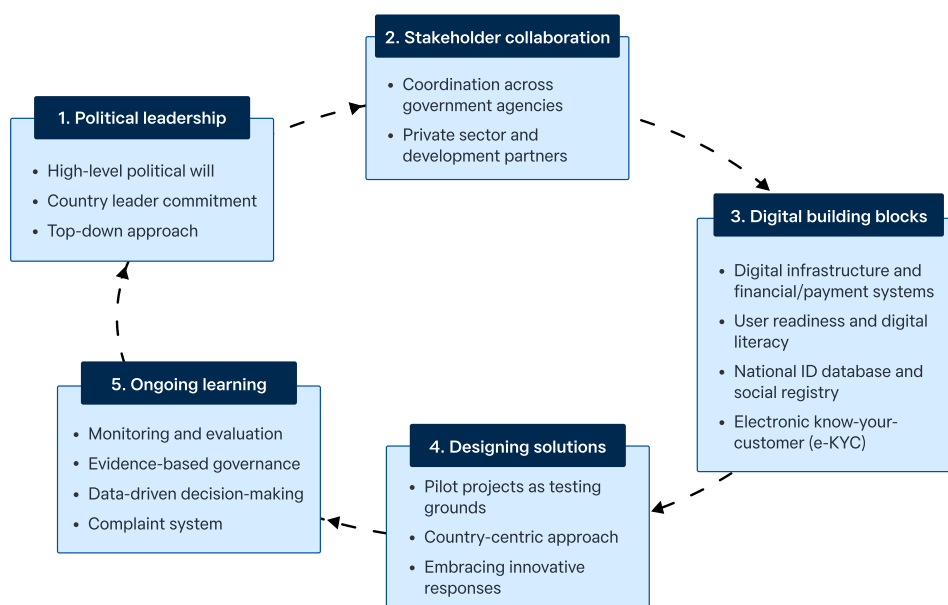
## No one-size-fits-all approach

Indonesia learnt from the successes of other countries in pursuing its social safety net digitisation agenda. For instance, inspired by India's *Aadhaar* system, Indonesia integrated its social assistance programs with its national ID system. Taking cues from Brazil, Indonesia adopted a targeted approach, aiming to prioritise the most vulnerable segments of the population through a social registry (known in Indonesia as DTKS, on which more below) to streamline beneficiary identification and ensure more efficient and accurate disbursements. However, Indonesia also innovated to find the best solutions for its own circumstances.

Indonesia's experience demonstrates that successful digitisation requires more than simply copying the approach of others. The key requirements are strong and sustained commitment from numerous government entities and active collaboration with stakeholders. The process also necessitates a focus on enabling factors (government commitment, collaboration, and digital infrastructure) tailored to the unique conditions of the country and the needs of its beneficiaries. Figure 5 summarises Indonesia's progression on the path to social safety net digitisation.

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Figure 5  
Digitising the social safety net: the journey



Source: Lowy Institute

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## Political leadership

The Indonesian experience underscores the magnitude and long-term nature of digitisation, necessitating steadfast government commitment. President Joko Widodo (known as “Jokowi”), who took office in late 2014, turbocharged this agenda, campaigning on and delivering digitised social assistance programs. Over the past decade, Indonesia’s social safety net has undergone a transformation, with its enhanced performance garnering widespread political support. Whereas cash transfers were once politicised as a cynical electoral tool of incumbent presidents and legislators,<sup>20</sup> there is now strong support across politics, with the incoming government planning its own new initiatives.

Following his inauguration in late 2014, President Jokowi introduced a quick-win agenda of financial assistance through bank savings accounts and mobile money apps. In its early days, the Jokowi cabinet launched the “Three Magic Cards” (*Tiga Kartu Sakti*) program. These cards included: the Prosperous Family Card (KKS — *Kartu Keluarga Sejahtera*), a cash assistance program for underprivileged families; the Smart Indonesia Card (KIP — *Kartu Indonesia Pintar*), which provided educational financial assistance for students; and the Healthy Indonesia Card (KIS — *Kartu Indonesia Sehat*), offering health care for individuals.



Then Indonesian president Joko Widodo delivers the Prosperous Family Card for cash transfers in 2014 (Jakarta Post)



In 2016, President Jokowi sought to further accelerate Indonesia's social safety net digitisation process,<sup>21</sup> aiming to enhance the precision, efficiency, and overall quality of aid for those in need, with a particular focus on food assistance. In July 2017, the president took a major step by signing the Presidential Regulation on the Disbursement of Non-Cash Social Assistance.<sup>22</sup> This regulation mandated that all social assistance from the government would be disbursed through bank accounts.

Jokowi's second term, beginning in 2019, ushered in a continuation of Indonesia's digitisation endeavours. This commenced with the enhancement and modernisation of the social registry database, aimed at becoming the central repository for eligible beneficiaries of social assistance programs. This database is linked and integrated with the national ID database to streamline verification and validation processes.

A plan to reform the cooking gas subsidy was initiated in 2020, following the biometric authentication pilot project conducted in 2018–19. The goal was to transition from subsidising goods to providing funds directly to eligible beneficiaries. The reform is being implemented in stages: in 2023, by verifying beneficiary data for the 3kg liquefied petroleum gas (LPG) cooking gas subsidy;<sup>23</sup> and in 2024, by introducing a digital beneficiary logbook via a website application. Moving forward, only registered beneficiaries will be able to purchase subsidised cooking gas.

Most recently, an advanced digital disbursement system roadmap — Indonesia Government-to-Person (G2P) Payment 4.0 — has been established to foster interoperability and cater to beneficiaries' preferences, encouraging collaboration among financial service providers such as banks and fintechs. The goal is for beneficiaries to have the flexibility to choose their preferred disbursement channel, whether through traditional bank accounts or electronic money accounts. Looking ahead, new political leaders remain committed to social assistance programs, intending to use them as a tool to promote broader economic growth rather than solely focusing on poverty reduction.

## **Stakeholder collaboration**

Digitisation of the social safety net requires a holistic approach, encompassing solutions that bridge not only technological requirements but also policy, legal, regulatory, economic, and social ones. Indonesia's government fostered strong partnerships with multiple entities to tackle the myriad challenges associated with digitisation. Ministries and regulators worked hand in hand to ensure policy coherence and coordination. State-owned enterprises and the private sector brought expertise in technological innovation, digital infrastructure, and service delivery.



High-level government coordination was achieved through a series of meetings involving various ministries and regulators. A specialised working group was established, comprising experts and representatives from relevant ministries and regulators including the President's Staff Office, the Poverty Reduction taskforce (TNP2K) under the Vice President's Office, the Coordinating Ministry for Human Development and Cultural Affairs, the Ministry of National Development Planning, the Ministry of Social Affairs, the Ministry of Finance, the Ministry of Home Affairs, the Central Bank, the Financial Services Authority, and state-owned enterprises including banks, the post office, telecom operators, technology providers, and fintechs. Ministries, regulators, and the Central Bank adapted regulations, enabled access to the national ID database, and facilitated electronic KYC processes. New payment mechanisms and changes to strengthen the payment system were tested.

*Indonesia gleaned invaluable insights from success stories across the global south, including from Bangladesh, Brazil, China, India, Kenya, and Pakistan.*

Collaboration also extended well beyond central government ministries and regulators. Local governments were involved too, playing a crucial role in disseminating information to beneficiaries and establishing offices or points for enrolment, training, and the socialisation of programs. Banks were involved to ensure secure financial access for beneficiaries, for example through savings accounts, and by introducing branchless/agent banking and digital wallets. Telecommunications companies played a significant role by providing free SIM cards exclusively for social safety net beneficiaries and enhancing mobile network connectivity. Technology startups worked with government to design mobile money platforms and biometric authentication methods. The diverse contributions of these stakeholders underscore the collaborative and multifaceted approach essential for successful social safety net digitisation.

International collaboration has also been important. Indonesia gleaned invaluable insights from success stories across the global south, including from Bangladesh, Brazil, China, India, Kenya, and Pakistan. This not only enriched Indonesia's understanding but also sparked inspiration to forge its own tailor-made solutions. International development partners, most notably Australia and the World Bank, have also played important roles, allowing Indonesia to access financial resources, technical expertise, information on best practices, and a global perspective on its own digitisation efforts.<sup>24</sup>

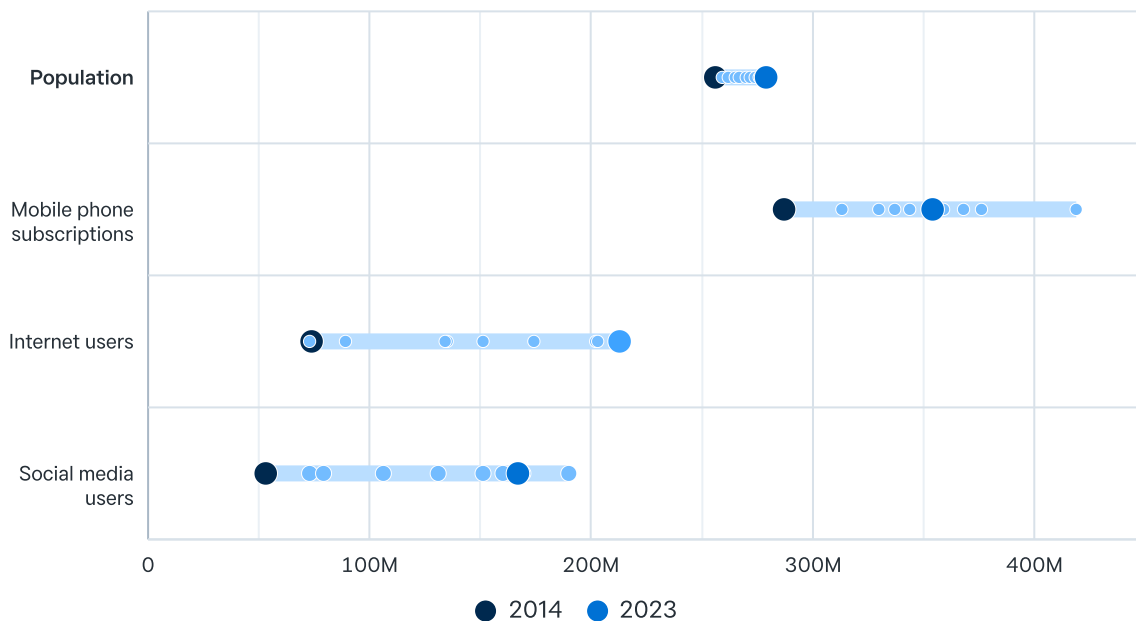
## **Digital building blocks**

Digitisation requires robust technological systems including reliable internet and mobile network coverage for remote access and secure payment channels for transfers to beneficiaries' accounts. With the ever-expanding reach of

internet connectivity, mobile networks, and payment systems, the adoption of digital solutions has become more feasible than ever. This evolution has significantly benefited social assistance programs by allowing beneficiaries to seamlessly access their entitlements through digital payments. The ease and convenience afforded by this digital infrastructure mean that beneficiaries are no longer bound by geographical constraints or the need for physical interactions with government offices, banks, or middlemen.

Indonesia is undergoing extraordinary digital growth. By 2023, a remarkable internet penetration rate of 77 per cent was achieved, with approximately 213 million people embracing the online world. Social media's pervasive influence is also evident, with 167 million active users of social media platforms, or about 60 per cent of Indonesia's total population (see Figure 6). Moreover, mobile technology has solidified its place in society, with 354 million cellular mobile connections, exceeding an astounding 128 per cent of the nation's total population.<sup>25</sup>

Figure 6  
Indonesia's digital users



Source: We Are Social & Meltwater, Indonesia Statistics Agency

User readiness is a crucial factor to consider when introducing digitisation initiatives. In Indonesia, the existing robust banking infrastructure, including widespread ATM availability, provided a strong foundation for bank-led digital solutions. However, while telco-led mobile money solutions offer enhanced

accessibility, concerns linger regarding mobile phone ownership and the ability of vulnerable families to afford voice and data plans. Moreover, the challenge of digital literacy looms large, underscoring the importance of ensuring beneficiaries can effectively navigate the digital system. To bridge this gap, there is a pressing need to further educate beneficiaries.

*Nearly all Indonesians have a national ID. Population data, including personal information, facial photos, and biometrics, are stored in the national data centre.*

A national ID system ensures the accurate identification of beneficiaries, reducing errors, duplication, and fraud. Governments can tailor support based on specific circumstances by uniquely linking individuals to their respective records. The system also plays a pivotal role in driving digital inclusion. With a unique ID, governments create a gateway to accessing a wide array of digital services, including financial products and digital payments.

Nearly all Indonesians have a national ID. Population data, including personal information (name, date of birth, occupation, address, etc), facial photos, and biometrics (fingerprints, iris recognition), are stored in the national data centre. This expedites KYC processes to verify customer identities, especially for financial institutions. Electronic KYC capabilities eliminate the need for physical government-issued documents such as ID cards or driver's licences, as well as proof of address documents.<sup>26</sup> New account openings that require verifying personal data, such as for financial services, can be completed in minutes.

The *Data Terpadu Kesejahteraan Sosial* (DTKS) serves as Indonesia's social registry. This unified database stores socio-economic information for households and individuals nationwide, particularly targeting the bottom 40 per cent of the population.<sup>27</sup> It identifies eligible beneficiaries for social assistance programs linked with the national ID database, serving as the backbone of government efforts to provide targeted assistance. Acting as the central repository for beneficiary data, DTKS minimises the risk of benefits reaching ineligible beneficiaries.<sup>28</sup>

## **Designing solutions**

A country-specific approach in social safety net digitisation requires a thorough understanding of the country's unique challenges, infrastructure, and opportunities. Pilot projects serve as invaluable testing grounds to evaluate the feasibility of digital solutions, allowing for iterative adaptations and innovative responses. They offer a controlled and manageable experiment to assess workability before nationwide implementation. Indonesia conducted studies and pilot projects to build evidence-based advocacy for policy reforms. Digital solutions, including mobile money, debit cards, quick response (QR) codes,

near-field communication (NFC), and biometric authentications, were tested to meet Indonesian conditions.<sup>29</sup>

For example, inspired by Kenya's success, Indonesia experimented with delivering social payments via a mobile money solution. However, pilot projects conducted from 2014 to 2015 revealed the unsuitability of using Unstructured Supplementary Service Data (USSD) — a communication protocol that facilitates real-time interaction between mobile phones and service providers through the dialling of specific codes, enabling menu-driven transactions without the need for an internet connection or a smartphone — due to challenges such as an unstable telecom network, the necessity for a prepaid balance, limited time for USSD access, and beneficiary difficulties with the USSD mechanism. Similarly, mobile money and NFC transactions proved unworkable due to beneficiary unfamiliarity with phone-based transactions. Printed QR codes, meanwhile, faced fraud risks, as they could be easily copied.

In 2016–17, various other digital systems were tested, including alternative mobile money solutions, debit cards, QR codes, and NFC. After pilot testing with 4,000 participants, the debit card emerged as the most suitable solution due to its familiarity and practicality with average Indonesians, given the country's widespread ATM network.

Debit card disbursements began in 2017 under the Presidential Regulation on the Disbursement of Non-Cash Social Assistance. Today, the debit card with combo card feature is a cornerstone of food assistance and PKH disbursement programs.



Indonesia's 3kg  
LPG pilot project  
(Hilman Palaon)

In 2018–19, Indonesia tested biometric authentication (fingerprint and face recognition) and a digital ID program for distribution of its 3kg LPG subsidy. The solution ensured benefits reached the intended recipients, with only the beneficiaries able to perform the transactions. It also streamlined the user experience by simplifying authentication processes, and eliminated the need for physical transaction instruments such as savings books, debit cards, or digital devices. The pilot results show promise for the next stage of subsidy reform. However, implementing this reform entails reallocating budgets from goods subsidies (funds used to reduce prices on essential goods and accessible to the general population) to cash transfers or e-vouchers (funds given directly to the intended beneficiaries). Securing political backing for this agenda is a protracted process, and as of today, it remains under discussion.

## Ongoing learning

Monitoring and evaluation are vital to the successful digitisation of Indonesia's social safety net. Such processes allow policymakers to take informed, data-driven decisions about program modifications and resource allocation.

Indonesia leads in using randomised controlled trials for evidence-based governance, thereby enhancing the delivery of social assistance programs and laying the groundwork for more impactful policies. The increasing digitisation of government data, encompassing administrative and disbursement data, provides a wealth of information, offering a cost-effective means to expand sample sizes, ensuring national representation.<sup>30</sup>

A digitised social safety net, integrating beneficiary data and disbursement reports, also provides substantial advantages in combatting corruption. By using this data, institutions such as the Audit Board of Indonesia (BPK — *Badan Pemeriksa Keuangan*) and the Corruption Eradication Commission (KPK — *Komisi Pemberantasan Korupsi*) have enhanced their auditing and mapping capabilities to identify potentially corrupt practices. The availability of comprehensive data enables early detection of irregularities, facilitating proactive measures to prevent fraud.

Moreover, Indonesia has implemented a one-stop public service complaint handling management system (LAPOR), which facilitates the reporting of grievances and suggestions regarding social assistance programs<sup>31</sup>, enabling individuals to voice concerns through the system's website, Twitter (X) account, and mobile apps. This initiative empowers citizens to participate in governance and serves as a tool for monitoring and verifying program achievements.

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# Challenges in the digitisation journey

The process of digitising Indonesia's social safety net has not been without its challenges. These include the need for robust digital infrastructure and widespread access across vulnerable groups, digital literacy among the population to enable uptake, and sustained political support and senior government commitment to implement reforms.

## Digital divide

Indonesia, an archipelagic nation, grapples with unique challenges in ensuring widespread digital connectivity. While Java and the western regions boast relatively strong digital infrastructure coverage, the eastern part of the country faces persistent limitations. As of 2021, regions such as Sumatra, Java, Bali, Nusa Tenggara, Kalimantan, and Sulawesi boast more than 93 per cent mobile network coverage, with a majority experiencing strong signal quality. However, the eastern provinces of Maluku and Papua have historically lagged behind, with 56 per cent of the population lacking a signal in 2014, improving to 38 per cent by 2021.<sup>32</sup> Acknowledging this digital disparity, the government has launched major projects aimed at enhancing digital infrastructure eastwards, particularly in underdeveloped and remote areas. Despite progress, closing this digital gap remains a top priority for the government to ensure equal access to communication and technology nationwide.

*The journey of digitisation must also account for gender, equity, diversity, and social inclusion.*

Mobile phone ownership is prevalent across households, with at least one phone commonly shared among family members. However, urban areas typically exhibit higher ownership rates than rural areas. In 2014, 61 per cent of urban residents owned a mobile phone, while only 42 per cent of rural inhabitants owned one. By 2022, there was a notable improvement, with 74 per cent of urban residents owning at least one device, compared to 60 per cent in rural areas. Indonesia's government considers these conditions when implementing digitised social safety net disbursements, gradually distributing the digitised benefits across regions based on their digital infrastructure.

The journey of digitisation must also account for gender, equity, diversity, and social inclusion. Women and girls, particularly in rural areas of Indonesia,



experience a significant digital gender gap, accessing the internet far less than their male counterparts due to social norms that restrict their access to digital tools. Similarly, individuals with disabilities, especially older people, also face barriers, with only a small fraction having access to internet services or mobile phones, which impedes their digital participation.<sup>33</sup> The current solution involves distributing assistance directly to the homes of beneficiaries, specifically targeting elderly individuals and people with disabilities.

## Digital and financial literacy

Digital literacy plays a crucial role in empowering vulnerable households, with children often emerging as agents of change in this regard. In Indonesia, parents frequently involve their children in using digital solutions during social assistance pilot projects and the disbursement of digital benefits, recognising their proficiency and comfort with technology. This dynamic leads to children becoming educators, sharing valuable digital skills with their parents and cultivating a collaborative learning atmosphere within the household. In 2022, the level of Indonesian digital literacy rose modestly by 0.05 points, reaching an index score of 3.54 (out of 5 points). This was consistent across all provinces. The disparity in digital literacy between genders is marginal, with men scoring slightly higher at 3.56 compared to women at 3.52.<sup>34</sup>

The National Survey on Financial Literacy and Inclusion in 2022 highlighted that Indonesia's financial literacy index score remained low at 50 per cent.<sup>35</sup> This underscores a continued deficiency in knowledge and understanding regarding effective financial management and optimisation of financial products. Addressing this, financial literacy programs have integrated non-cash social assistance disbursement mechanisms through targeted educational initiatives. These involve non-cash social assistance distributors (such as food stalls and retailers), program assistants, district social welfare workers, and beneficiary families serving as financial educators for others.

## Resistance to change

Indonesia aims to seamlessly transition its citizens to digital safety net programs through simplification and user-friendly digital solutions, ensuring they can perform transactions with minimal education or training. Nonetheless, hurdles remain. For instance, surveys and monitoring results have revealed that beneficiaries often encounter difficulties in remembering their PINs.<sup>36</sup>

Socialisation efforts have been undertaken to garner broader support, using village or community leaders as advocates for the transition to digital. These leaders play a crucial role in emphasising the benefits of digitisation. In the early stages, social workers feared losing their jobs due to the digitised disbursement

methods, which increased resistance during implementation. However, the solution has evolved to enhance their roles. They now have a valuable opportunity to elevate their expertise through the acquisition of new digital skills and involvement in diverse government initiatives, spanning financial inclusion, financial literacy, digital monitoring mechanisms, and economic empowerment. It is essential to underscore the advantages of digitisation for these workers, illustrating how it can augment their roles rather than replace them.

## **Sustaining political support**

Given its complexity and long-term nature, the success of digitisation requires strong political leadership and backing from top policymakers. Maintaining support can prove difficult amid competing priorities, budget constraints, and shifting political landscapes. For instance, the progress of energy subsidy reforms has been slow despite ample supporting studies and evidence showing that current energy subsidies lack effective targeting, fail to significantly alleviate poverty and inequality, and face numerous operational challenges.<sup>37</sup> Energy subsidies are often politicised and universally implemented, yet they predominantly benefit higher-income households.

President-elect Prabowo Subianto's agenda includes continuing current social protection programs and advancing Indonesia's digitisation. The incoming leadership intends to strengthen these initiatives by transitioning to a universal social protection program, which aims to safeguard individuals from vulnerabilities and shocks throughout their lives, targeting a poverty rate of below six per cent. The new government's broader development agenda also includes investing in Science, Technology, Engineering, and Mathematics (STEM) education to help build the skills needed for new technology startups.

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# The Indonesian government's development agenda

Future reform of Indonesia's social protection system should involve expanding its scope and access to provide a comprehensive, integrated, and inclusive system that effectively addresses the diverse needs of individuals and families.

## Recertification and graduation

A key test of the system will be to wean citizens off social assistance programs once they are no longer in need of them. Recertification ensures that individuals continue to meet the criteria for receiving assistance by assessing their economic conditions and welfare, particularly those who have been receiving support for five years or more. Recertification is essential to enhancing the quality of the social registry. This improvement in accuracy ensures that social assistance reaches those in need promptly and effectively while removing persons no longer eligible.

The government intends to implement graduation procedures to transition beneficiaries who have improved their socio-economic status. These procedures are designed to recognise beneficiaries who have achieved significant economic progress, helping them become self-reliant and less dependent on government assistance. This transition includes a thorough assessment of beneficiaries' improved conditions and the provision of necessary skills, resources, and opportunities to maintain their new-found economic stability. Additionally, economic empowerment programs will be introduced to further support this transition, providing business capital assistance to beneficiary families who already operate businesses and wish to transition away from social assistance programs.

## Program integration

Further program integration, starting with consolidating beneficiary data across ministries and programs, is essential for maximising impact and better targeting support. However, in practice, achieving integration is fraught with challenges, requiring extensive coordination among ministries and stakeholders, particularly in Indonesia's decentralised context. Multi-sector initiatives are complex and require high-level political prioritisation and sustained commitment. This will need to be a key reform agenda for the incoming cabinet.

## Free lunch program

The new cabinet, which will assume office in late 2024, plans to introduce a free lunch program, offering meals to students, children under five, and pregnant women to combat stunting and alleviate financial strain. By supporting local farmers and food producers, the program aims to simultaneously improve food security and stimulate economic growth.<sup>38</sup> Implementation of digital solutions is crucial to this initiative. These solutions can streamline the registration and verification process, ensuring meals reach their intended beneficiaries efficiently. Real-time monitoring through integrated databases would enable proactive adjustments to food distribution. Moreover, digital payment systems have the potential to enhance transparency in financial transactions with local farmers and food producers, fostering accountability and fair market practices.

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# Future paths for advancing digitisation

The path to modernising social safety nets through digitisation is both promising and challenging. While strides have been made, there remains a significant journey ahead. Key to this advancement is the implementation of an integrated and interoperable digital system. Looking forward, the focus should be on embracing cutting-edge technologies such as big data analytics and AI-driven solutions. These innovations hold the promise of not only enhancing efficiency but also improving the overall performance and integrity of social assistance programs.

## Integration and interoperability

The varied operational systems across ministries delivering social assistance programs will pose integration challenges. Efforts are needed to ensure data consistency through synchronisation and harmonisation, facilitated by standardised protocols and formats. Each system and program may involve different payment providers and types of support, such as cash transfers or e-vouchers. Interoperability among these providers is crucial, allowing beneficiaries to access their benefits seamlessly. Beneficiaries should also have the flexibility to choose their preferred disbursement account, whether it is a bank account, electronic money wallet, or fintech account (digital financial services offered by fintech providers). The Indonesia Payment System Blueprint 2025 enables interoperability among digital financial services providers, allowing beneficiaries to select their preferred accounts for receiving funds from social assistance programs.<sup>39</sup>

## Central Mapper

Central Mapper represents the next cornerstone for building out Indonesia's digitised system, focusing on centralising and optimising the management of data related to all social assistance programs.<sup>40</sup> This includes beneficiary information, funds/assurances provided, disbursement details, and program reports. Currently, Central Mapper is transitioning from concept to a national initiative. The government is in the process of evaluating the operational capability of Central Mapper to oversee key functions such as data collection, verification, validation, mapping, allocation, monitoring, and reporting.

## **Biometric authentication**

Indonesia's combo card has faced challenges, with beneficiaries often unable to memorise PINs, leading to PINs being written down and attached to debit cards, posing security risks. Results from a biometric authentication pilot project suggest biometrics could provide a reliable authentication method. This offers users a convenient way to transact without requiring a debit card or mobile phone, instead using their face or fingerprint at the disbursement location.<sup>41</sup> The advancements in Indonesia's digital ID system, complete with biometric data, will bolster this initiative.

## **Data protection and cybersecurity**

Data breaches are a common risk in Indonesia, threatening digitised programs. Unauthorised access to information — including beneficiary identifiers, financial details, and health records — can lead to identity theft, fraud, or other harmful activities targeting beneficiaries. Ensuring robust data protection and cybersecurity measures is crucial to safeguarding the system and maintaining the integrity of social assistance programs.

## **Technical integrity**

In Indonesia, a shortage of digital experts within government poses a significant hurdle to effectively operating and monitoring digitised systems. Furthermore, the rapid evolution of technology and the ever-changing tactics employed by cybercriminals necessitate a commitment to continuously updating digital systems. Allocating sufficient resources and budget for ongoing training and capacity-building will be key to ensuring personnel managing digitised systems can effectively mitigate potential threats while keeping pace with technological advancements.

## **Harnessing big data and analytics**

Big data and analytics can play an instrumental role in refining graduation criteria and recertification processes for social assistance programs. This analysis enables informed decision-making, facilitating targeted interventions and promoting program sustainability.

## **Embracing AI**

Integrating artificial intelligence (AI) technologies offers a potentially transformative approach to enhancing social assistance program effectiveness.



For instance, AI can enable real-time monitoring of program outcomes, facilitating quick adjustments to improve impact. Through advanced algorithms, AI can analyse extensive data sets, providing valuable insights into beneficiaries' preferences and requirements. AI-driven chatbots can also offer immediate responses to beneficiaries' queries, while virtual assistants provide personalised financial guidance. Additionally, AI-powered fraud detection systems can be used to identify suspicious activities, ensuring program integrity and safeguarding beneficiaries' interests.

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## Conclusions: Lessons for other countries

The key observation from Indonesia's experience is that there is no one-size-fits-all approach. However, with the requisite policy focus and careful design, leapfrogging past the analogue delivery of social assistance is possible. In reflecting on Indonesia's path to digitisation, five lessons emerge for other countries embarking on similar journeys.

- **Policy:** Promote digitised social safety net systems as an effective tool of government policy for alleviating poverty and responding to crises, such as pandemics, in an increasingly shock-prone world.
- **Buy-in:** Secure strong commitment from political leaders, government agencies, regulators, and commercial players as well as program delivery workers and targeted beneficiaries in order to navigate complex long-term reform agendas.
- **Design:** Adopt a country-specific approach with tailored pilot projects to address the country's unique contexts, paying particular attention to user readiness, accessibility, and convenience for all beneficiaries.
- **Fundamental tech:** Build a national ID database and social registry to streamline beneficiary identification and KYC processes as vital foundations for digitisation.
- **Advanced tech:** Promote advanced data analytics and digital solutions to continuously enhance program performance, integrity, transparency, and accountability.

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