SMERU POSITION PAPER No. 1

ACCELERATING INCLUSIVE AND FAIR DIGITAL TRANSFORMATION TO ANTICIPATE CHALLENGES FACING THE FUTURE OF WORK

Palmira Permata Bachtiar, Jimmy Berlianto, Lia Amelia

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Abstract

Accelerating Inclusive and Fair Digital Transformation to Anticipate Challenges Facing the Future of Work

Palmira Permata Bachtiar, Jimmy Berlianto, Lia Amelia

This position paper is developed to overview the recent development of digital transformation and existing policy gaps. More specifically, two research questions are posed to achieve the objective: (i) how gains from digital transformation can be used to address the pressing issues of poverty and inequality and (ii) how policies should respond to and anticipate the barriers to inclusive and fair digital transformation. We employed mixed methods which include the analysis of quantitative data as well as qualitative data from in-depth interviews with various stakeholders. Our findings show that the pandemic has significantly accelerated connectivity. However, inequality still lingers in regions outside Java and Bali. Moreover, an improvement in connectivity is necessary but not sufficient to include the underserved population. Digital transformation of this group is problematic due to issues regarding affordability, digital literacy, and application friendliness. Furthermore, despite the fact that the governance of digital transformation is already in place, it is still inadequate to enable all parties to thrive fairly. As digital platforms operate under the cross-sectoral authority, their supervision becomes more complex. Besides, digital transformation could only be accelerated if the implementing regulations of data protection are issued. Finally, gig-economy workers have to be protected, as they are vulnerable to various risks, more importantly safety risks. To conclude, inclusive and fair digital transformation requires affirmative actions to ensure 'no one left behind' and enable all parties to benefit from the transformation. Therefore, it is urgent to establish the discourse on the internet as a civil right. Moreover, fair digital transformation requires protection of gig-economy workers.

Keywords: digital transformation, connectivity, internet access, poverty and inequality, gig-economy workers

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3T	*daerah terdepan, terluar, dan tertinggal*	the frontier, outermost, and least developed (regions)
4G		fourth-generation technology
APJII	Asosiasi Penyelenggara Jasa Internet Indonesia	Association of Indonesian Internet Service Providers
ASO		analog switch-off
BAKTI	Badan Aksesibilitas Telekomunikasi dan Informasi	Telecommunication Accessibility Agency
BPJS	Badan Penyelenggara Jaminan Sosial	Social Security Implementing Agency
BTS		base transceiver station
BUMDes	Badan Usaha Milik Desa	village-owned enterprises
COVID-19		coronavirus disease 2019
G-20		Group of 20
JKN		National Health Insurance
KPPU	Komisi Pengawas Persaingan Usaha	Indonesia Competition Commission
KSI		Knowledge Sector Initiative
MSMEs		micro-, small-, and medium-scale enterprises
Podes	Potensi Desa	Village Potential
RPJMN	Rencana Pembangunan Jangka Menengah Nasional	National Medium-Term Development Plan
Sakernas	Survei Angkatan Kerja Nasional	National Labor Force Survey
SDGs		Sustainable Development Goals
SMEs		small- and medium-scale enterprises
Susenas	Survei Sosial-Ekonomi Nasional	National Socioeconomic Survey

I. Introduction

On 16 November 2022, President Joko Widodo officially closed the Group of 20 (G-20) Forum, which placed digital transformation as one of the top priorities to achieve the "Recover Together, Recover Stronger" agenda (Ministry of Foreign Affairs of the Republic of Indonesia, 2022). It is clear that digitalization has contributed to the global economy even during the coronavirus disease 2019 (COVID-19) pandemic. In fact, digital economy is seen as the savior of Indonesia's economy during the pandemic, as stated by the Central Bank Governor (Muthiariny, 2022). Thus, the country needs to continue accelerating its digital transformation in the postpandemic recovery.

The digital transformation journey shows that Indonesia still lags behind its neighboring countries in internet development.[1] Geographical condition and population distribution are among the factors in advancing connectivity. The Millennium Development Goals could not be achieved, as the number of internet users fell short of the 50% population target (Firdaus, 2014). However, at the end of his administration, President Susilo Bambang Yudhoyono issued Presidential Regulation No. 96 of 2014 on the Broadband Development Plan 2014–2019. It was followed by the launch of the fourth-generation technology (4G) network in late 2014, allowing people to enjoy the internet more intensively starting from 2015 onward (Kementerian Komunikasi dan Informatika, 2015).

In 2019, the Palapa Ring was launched as a nationwide backbone network connecting all districts. In January 2020, President Joko Widodo signed Presidential Regulation No. 18 of 2020 on the National Medium-Term Development Plan (RPJMN) 2020–2024, in which he mainstreamed digital transformation along with three other critical issues, i.e., Sustainable Development Goals (SDGs), gender, and social capital. The relevant targets in the SDGs are primarily on the availability and usage of the internet, as stipulated in the 17.8.1 and 17.8.1a indicators, while the targets in RPJMN revolve around infrastructure development, especially regarding broadband coverage, digital broadcast, and digital businesses. The final milestone was the COVID-19 pandemic in March 2020, which drove all daily activities online—and there seems to be no turning back.

Digital transformation has also been proven to be an extraordinary research topic. The SMERU Research Institute started to take digitalization as a research topic in mid-2019 with the funding from the Knowledge Sector Initiative (KSI). In three years, nine studies relating to digitalization were undertaken, marking the high demand for and importance of digitalization as a policy issue. However, having the vision of an Indonesian society and a world free of all forms of poverty and inequality, SMERU continues to ask itself the following questions.

a) How can gains from digital transformation be used to address the pressing issues of poverty and inequality?

[1]For example, in Indonesia the analog switch-off (ASO) only took place in early November 2022, while other ASEAN countries had done it in early 2020 and even way before (Zaki, 2022). Meanwhile, the vital spectrum of 700 MHz used by analog TV could be allocated for 4G development, according to a study conducted by GSMA (Robinson and Sivakumaran, 2018).

b) How should policies respond to and anticipate the barriers to inclusive and fair digital transformation?

These are valid questions considering that technology is not created to tackle inequality (Wei, 2019). Although digital transformation promises to bring about abundant potential gains which can be used to reduce poverty, this opportunity is not without challenges. Therefore, policymakers are to anticipate the future dynamics of digital transformation, particularly during the postpandemic recovery so that its outcomes could be more inclusive and fairer.

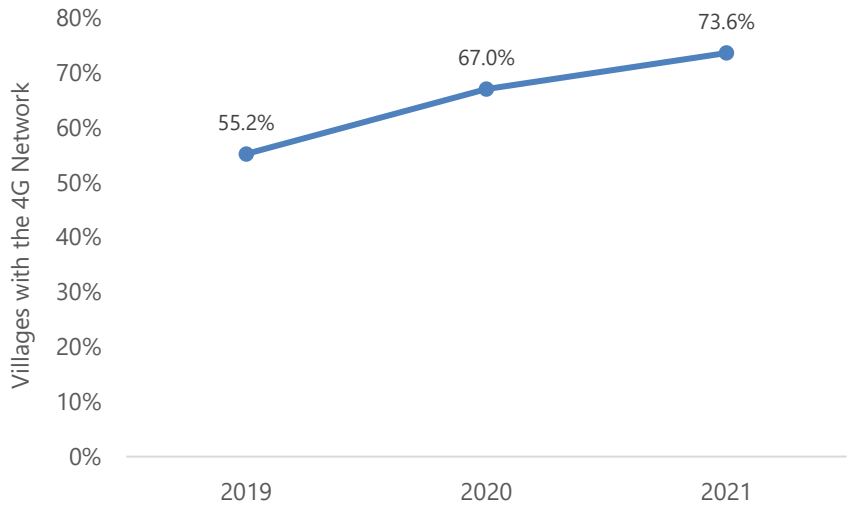
This paper is developed to overview the recent development of digital transformation and existing policy gaps. A situational analysis was carried out by mapping the findings of SMERU's digitalization-related research using an analytical framework derived from its study on digital economy. The analysis also used quantitative data from Statistics Indonesia, namely the latest version of the Village Potential (Podes), National Socioeconomic Survey (Susenas), and National Labor Force Survey (Sakernas) data. Policy gaps were identified from a situational analysis. Finally, to confirm the immediate findings, qualitative data was collected from in-depth interviews with various stakeholders, i.e., relevant line ministries, public service agencies, social security agencies, think tanks, the Indonesian Foundation for the Blind (Pertuni), and digital platforms.

II. The Pandemic Has Significantly Accelerated Connectivity, but Inequality Lingers

The COVID-19 pandemic serves as an important milestone in connectivity. During this time, the network coverage in Indonesia has progressed significantly (Figure 1). As of 2021, the 4G network already covered almost 75% of the nation, much larger than its coverage in 2019. An explanation of this phenomenon could come from the high demand for connectivity in public facilities, such as health centers and schools, from the Ministry of Health and Ministry of Education, Culture, Research, and Technology, respectively.

> From the supply side, there has been a significant increase in connectivity during the pandemic. In 2020, we added more than 3,000 internet connections at health centers and schools in remote areas. It is a free-of-charge service for public use. (Informant, female, 23 November 2022)

Figure 1. 4G Network Coverage in Indonesia



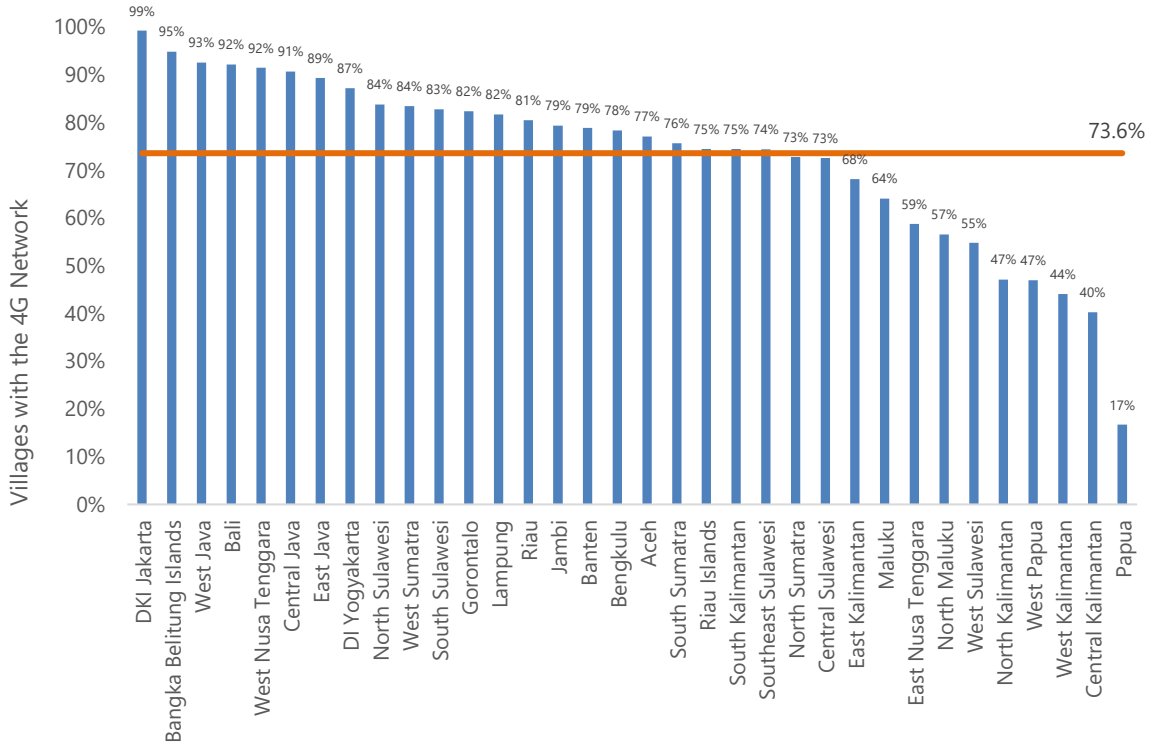
Source: Podes 2019–2021.

With funds from the National COVID-19 Committee, the Telecommunication Accessibility Agency (BAKTI) of the Ministry of Communications and Informatics added connectivity as an effort to accelerate the handling of the pandemic in the most remote areas. For example, about 70% of the 3,126 total connectivity targets at health centers were constructed in 2020 (Kementerian Komunikasi dan Informatika, 2020).

Although connectivity outside Java and Bali has improved significantly during the pandemic, a wide gap between regions in Java-Bali and those outside Java-Bali still exists. The 2021 data shows that most of the provinces in the eastern part of Indonesia fell short

of the the national average level of 4G coverage (Figure 2). Therefore, government interventions are needed to help these provinces fight against digital divide.

Figure 2. 4G Network Coverage in 2021 by Province (the 4G Network Covers 74% of the Nation)



Source: Podes 2021.

However, the challenges regarding the provision of the internet outside Java and Bali are clear. In addition to low population density and geographical challenges, such as remoteness, there are important issues related to supporting infrastructure, security, and incentive. Electricity, for example, is a prerequisite for internet connection and its absence is the very reason why the least developed areas could not be served.

> First, the requirement for proposing connectivity from BAKTI is the presence of electricity. But that is the responsibility of the local governments. They have to make an effort to deal with the state-owned electricity company, buy solar panels or generators to supply power. (Informant, female, 23 November 2022)

Transportation is an issue during the construction of a base transceiver station (BTS) in the least developed areas (Selular, 2021). It is not surprising that it takes all transportation modes—land, water, and air—to bring construction materials to the site. Sometimes, people have to use buffalos to carry construction materials when the road could not be passed by a four-wheel drive. Meanwhile, crossing the river for hours could be dangerous because of, for example, a crocodile attack. Furthermore, for air transportation, choppers must go back and forth several times because the materials are heavy to carry at once. Thus, construction costs could be awfully expensive. There are also issues regarding security. In some regions, particularly Papua, where security is a prominent issue, it is

important to obtain security guarantees from the local government as well as the local police and military. Security is also important in the postconstruction period, as the infrastructure built requires regular visits for maintenance.

Box 1
Village-Owned Enterprises (BUMDes) & Internet Provision in Less Developed Areas

BUMDes can be an entry point for villagers to enjoy the internet. From 2019 to now, there have been 38 cases where BUMDes, with the facilitation from BAKTI, invited local broadband providers. For BAKTI, the presence of BUMDes would guarantee the sustainability of internet provision. The BUMDes scheme serves as a shortcut for villagers in noncommercial areas, as it would normally take a long time to receive BTS services from BAKTI.

While BAKTI only operates in the least developed areas, the more developed ones have also been using the BUMDes scheme with the assistance from local governments. For example, in Kabupaten Purworejo, the local government facilitates the cooperation contract between BUMDes and local broadband providers. Located in Central Java Province, Purworejo is still facing the problem of blank spots in its many villages. Therefore, they need to work directly with an internet provider to have a more stable connection. This shows that local governments play a crucial role in mediating connectivity in their local areas.

Source: In-depth interview; BAKTI (2019); and Himawan (2021).

For internet companies, maintenance cost is an important aspect to consider (Wire, 2020; Bachtiar et al., 2020). Even when electricity is available, blackouts are still pervasive in many areas, including more developed regions. Frequent blackouts would impair electric facilities; also, stolen or vandalized spare parts would need a replacement. In addition to high maintenance costs, internet companies would avoid entering areas with high social costs where gangsters and conflicts are prevalent. Local governments should be able to handle these problems if they want to attract internet companies.

Moreover, the average revenue of users in the frontier, outermost, and least developed (3T) regions is only a fifth of the minimal amount required to provide and sustain internet services in a region (Jatmiko, 2021). Only few shops are selling mobile data and phone credit in the regions, making it even more expensive for users to go back and forth to buy data. Therefore, in the 3T regions, shops and banks should be made more accessible; otherwise, users should be connected to various fintech platforms where they can buy data directly from their handsets.

Furthermore, the 3T regions are not the only regions with blank spots. There are currently 12,548 villages with blank spots, 9,113 of which are in the 3T regions and should be handled by BAKTI (Putri, 2021). The remaining 3,435 villages located in non-3T regions are to be provided by the private sector. However, the definition of the 3T regions is considered problematic.[2] The definition of the term is biased against archipelago areas, as

[2]The term '3T regions' was first raised in Presidential Regulation No. 131 of 2015 on the Final List of the 3T Regions in the 2015–2019 Period and later updated in Presidential Regulation No. 63 of 2020 on the Final List of the 3T Regions in the 2020–2024 Period. The lists issued in both regulations are the mandate of Presidential Regulation No. 78 of 2014 on the Acceleration of Development in the Least Developed Regions. The indicators

stated by Dr. Sudarman, the Head of Communications and Informatics Agency of Bangka Belitung Islands Province, at the SMERU 2022 Policy Forum on Poverty and Equality, which was held on 29 November 2022.

> The regulation on the 3T regions needs to be changed. The current regulation is continent-based, while the sea makes up 80% of our areas. With this definition, we are not eligible for government assistance, as we are not part of the 3T regions. The regulation must be changed from the continental to archipelago perspective.

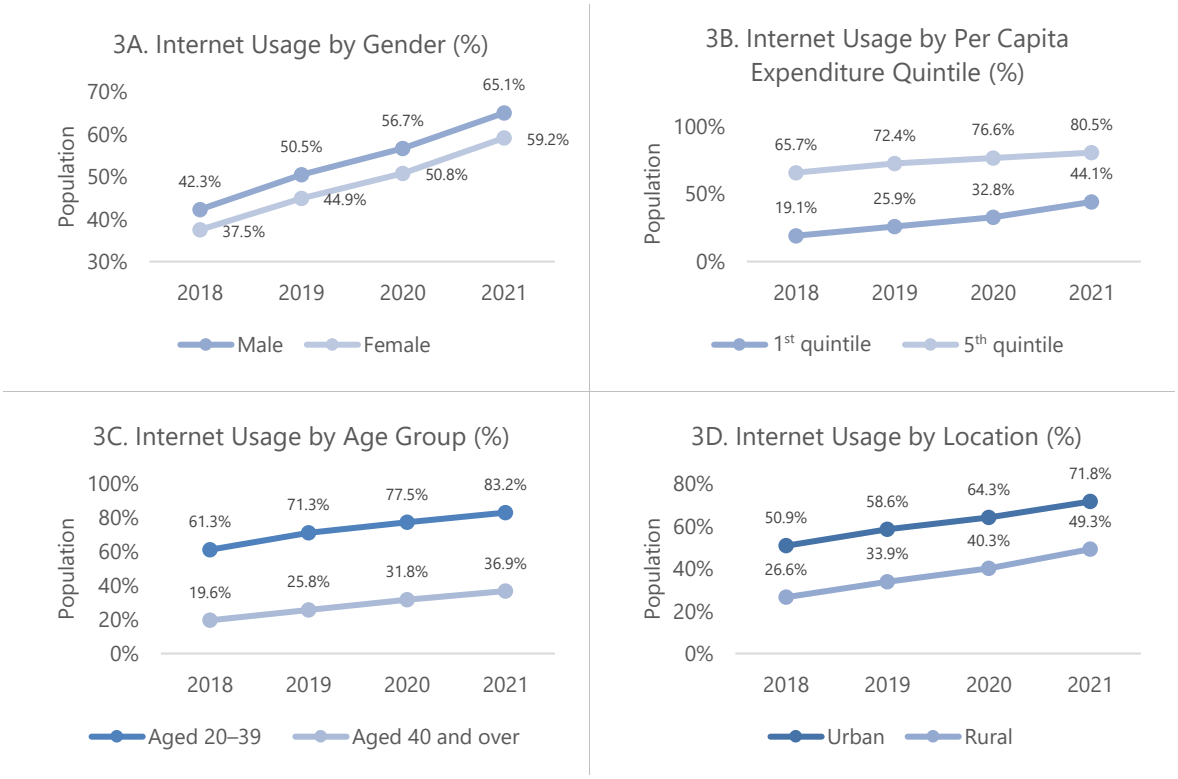
Finally, an incentive scheme should be given to internet and cellular companies to handle blank spots in non-3T areas. However, in doing so, internet providers are facing high construction and maintenance costs with low revenues. Thus, the government must think of various incentive schemes, such as reducing the rental costs of backbone networks. Currently, the rent of Palapa Ring East is much more expensive than the Palapa Ring West and Center (Bisnis Indonesia, 2021). Meanwhile, internet service providers require incentives in order to operate in the eastern part of Indonesia, where most of the least developed regions are located. These include the relaxation of Universal Service Obligation and fiscal incentives for investment in network development (Kure and Muslim, 2021).

used are (i) the economic condition of the region; (ii) human resources; (iii) infrastructure; (iv) fiscal condition; (v) accessibility; and (vi) other important characteristics.

III. For the Underserved Population, Internet Is Necessary yet Not Sufficient

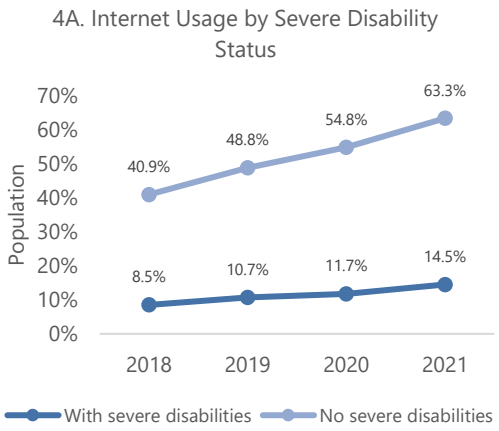
Unlike internet provision, access to the internet has not been accelerated significantly by the pandemic. At the national level, internet penetration growth prior to and after the pandemic only differs insignificantly. The disaggregated data of Susenas 2018–2021 does not show a tendency for internet usage to catch up between various internet users after the pandemic (Figure 3). The proportions of female and male users (Figure 3A), age-cohort users (Figure 3C), and users in urban and rural areas remain the same. The proportion of internet users between the first and fifth quintiles shows a slight decrease in gap in 2021 (Figure 3B). Meanwhile, people with severe disabilities are left even more diverged from those without severe disabilities (Figure 4A). However, the Sakernas data shows the convergence between female and male workers in using the internet for promotional use (Figure 4B).

Figure 3. Internet Usage by Key Sociodemographic Status

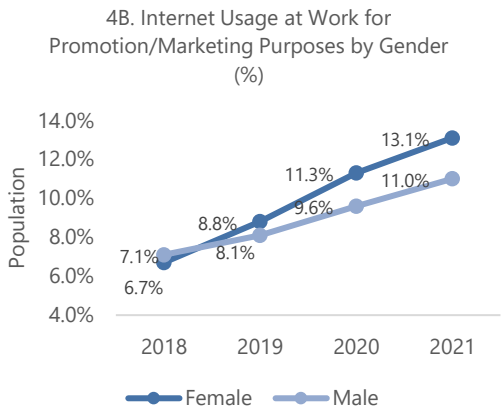


Source: Susenas 2018–2021.

Figure 4. Internet Usage by Severe Disability Status (A); Internet Usage for Promotional Use at Work (B)



Source: Susenas 2018–2021



Source: Sakernas 2018–2021

SMERU's studies show that the shortfall in internet adoption by the underserved population could be accounted for by socioeconomic status, i.e., gender, income level, education, occupation, geographic condition, age, and disability. At the same time, these factors explain why the demand for or access to internet connectivity remains low despite the supply or availability of internet infrastructure. Understanding the differences between availability and adoption is important in optimizing the use of infrastructure. Therefore, any interventions to address issues regarding access should also place women, the poor, people living in rural areas, people working in the informal sector, the elderly, and people with disabilities as the least disadvantaged group. SMERU's studies reveal that this socioeconomic status is rarely a sole disadvantage; in most cases, there are multiple forms of vulnerability which make one's status even more complex. For example, internet access is an issue for small- and medium-scale enterprises (SMEs) owned by poor women, the poor elderly, or poor people with disabilities living in rural areas. Thus, after the necessary condition (the provision of the internet) is met, the sufficient conditions (affordability, literacy, and application friendliness issues) require proper attention in addressing limited access and adoption.

First, the affordability of devices and data prices are the main factors blocking the underserved groups' access to the internet. Device ownership and data prices have been cited to hinder the poor, women, the elderly, and people with disabilities from going digital (Bachtiar et al., 2020; Yati, 2022).

> Not all people with visual disabilities own smartphones. Those coming from low-income families certainly lack them. They couldn't even buy books, let alone smartphones. (Informant, female, 21 November 2022)

Box 2
A Breakthrough in Smartphone Ownership

SMERU's studies on SMEs underline that smartphone ownership is the key to the digital transformation of SMEs. Women's uptake of smartphones is lower than men's and this is even more prevalent during the pandemic. Female owners of online shops had to stop taking orders from customers during daytime when children were using smartphones for online learning. Not only in terms of number, but the quality of old smartphones could also be problematic when their memory or battery can no longer function well for business.

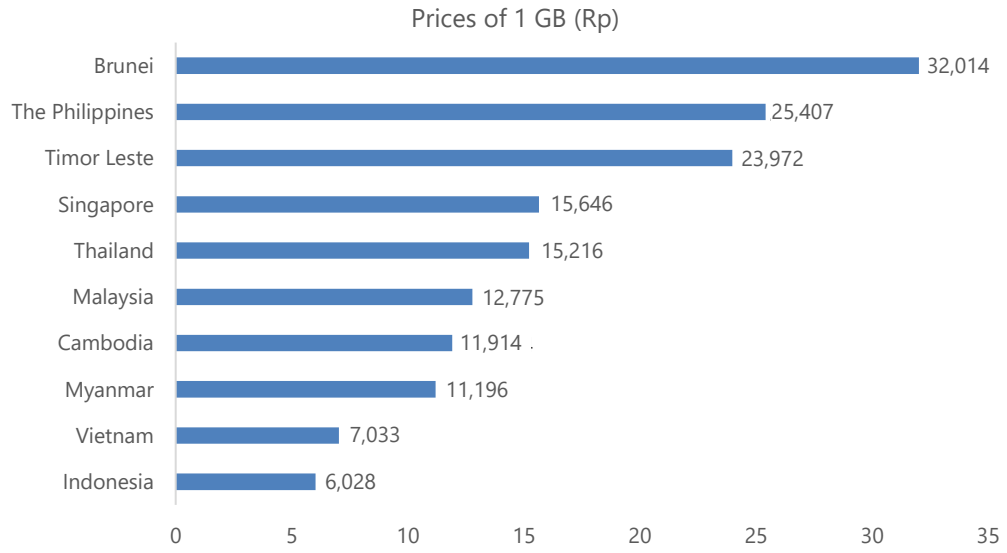
A breakthrough in providing facilities to improve smartphone ownership is important to bridge the digital divide. In Indonesia, national telecommunication companies started a partnership program with electronic shops. This trade-in program targets customers with an old mobile phone for an exchange with a new one. Payment could be made on an installment basis up to 24 months with a 0% interest rate, depending on the partner banks. The program started in 2018 and the expansion to other provinces were intensified during the pandemic.

Source: FGDs with associations for SME owners in Yogyakarta and internet providers on 18 August 2021.

Smartphone ownership is also significantly different between necessity-driven and opportunity-driven SMEs. SMERU's study on MSEs in Yogyakarta finds that the majority of necessity-driven SMEs did not have gadgets specifically used for their business. They had to share their smartphones with other family members, mainly their children, who had to learn from home during the pandemic. For some SME owners, their device was of an old type prohibiting them from registering in the marketplace or e-commerce platforms. On the contrary, almost all the opportunity-driven SMEs had their own smartphones particularly for business purposes. Moreover, necessity-driven SMEs lacked working capital. Instead of buying a data plan, they preferred to use their limited capital to purchase raw materials for production (Bachtiar, Kusumawardhani, and Indrio, 2022) .

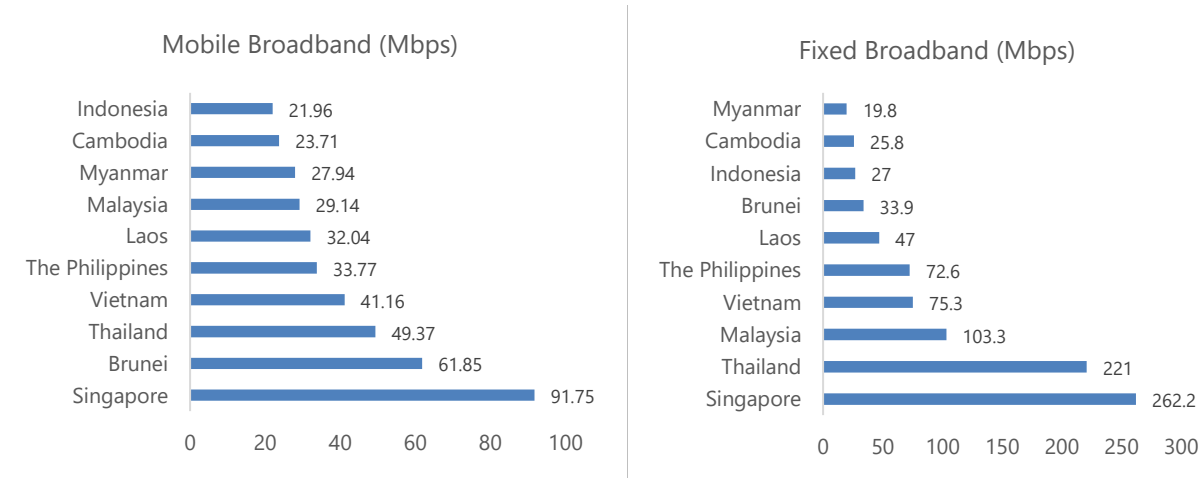
There are complaints about high prices of the internet. This is despite the fact that internet prices in Indonesia are already the lowest compared to those in other Southeast Asian countries (Figure 5). This is attributed to infrastructure sharing between operators (Wibisana et al., 2022) and price wars between operators (Suharno, 2022). Considering that most users could move to other operators even for a slightly lower price, price wars are the strategy to win the market. While they might be good for consumers, price wars create unhealthy competition leading to worse quality of the internet. Indeed, the quality of Indonesia's mobile broadband is the lowest compared to other Southeast Asian countries (Figure 6A), while its fixed broadband is among the lowest (Figure 6B).

Figure 5. Comparison of Mobile Broadband Prices in Southeast Asian Countries (2022)



Source: Bestari (2022).

Figure 6. Comparison of Mobile Broadband (A) and Fixed Broadband (B) in Southeast Asian Countries (2021)



Source: Pertiwi (2021).

Moreover, fixed broadband is much less popular than mobile broadband, as Indonesian customers put prices far above quality. Despite the better quality offered by fixed broadband, its users make up only 14.5% of the total 210 million internet users, according to a survey conducted by the Association of Indonesian Internet Service Providers (APJII) in 2022 (Alfianto, 2022). Table 1 summarizes various subscription fees of the internet in combination with TV channels.

Table 1. Subscription Fees of Fixed Broadband Offered by Different Providers (2021)

Mbps	Installment Prices (Including Cable TV)	
	Lowest (Rp/Month)	Highest (Rp/Month)
10	229,000	295,000
50	368,000	644,000
100	499,000	799,000

Source: Rizal (2021).

High prices of fixed lines are also attributed to risks in service expansion and innovation (ANTARA PR Wire, 2020) and any losses encountered are eventually charged to customers. Meanwhile, unlike mobile broadband, fixed broadband is more expensive, as infrastructure sharing is not common (Wibisana et al., 2022). Moreover, there is an entry barrier facing newcomers as a result of providers having to choose specific service licenses rather than one license for all services. This argument is in contrast with APJII's prediction that price wars in mobile broadband would soon come to fixed broadband.

Second, lack of digital literacy prohibits the underserved groups from adopting the internet. At the aggregate level, according to a survey conducted by the Ministry of Communications and Informatics in 2020, Indonesians in general have lower digital literacy, particularly information and data literacy (Kementerian Komunikasi dan Informatika, 2020). According to the 2021 Susenas data, low literacy explains why 17.1% users use the internet only for social media and entertainment purposes, and only 0.1% use it for emailing, online shopping, or e-banking. In between such extremes of nonproductive and productive use of the internet, there are users who use the internet for both productive and nonproductive purposes; however, the percentage is still higher for social media (88.27%), compared to learning (32.47%) and trading (17.87%).[3]

Kusumawardhani et al. (2022) showed that, compared to their male counterparts, women small business owners in general have lower digital literacy. This is intertwined with lower educational background. Consequently, internet usage among women small business owners differs from that among their male counterparts. Moreover, Kusumawardhani et al. (2021) highlighted that internet availability does not always benefit women in the labor market. In fact, the internet lowers the probability of less-educated women to work in the formal sector or land high-skilled jobs. Meanwhile, our in-depth interview shows that the digital literacy of children with disabilities depends strongly on that of their teachers.

> I visited schools for children with disabilities in Banda Aceh. They had 30 laptops, but they did not use them. The teachers still dictated and the children only wrote. In other places, digital libraries were available, but children were not taught the skills to access them. (Informant, female, 21 November 2022)

Third, technologically less inclusive designs hamper the onboarding of disadvantaged groups. Application companies might overlook this important issue and it is now critical to inclusively redesign the applications to tackle challenges regarding the use of intelligent

[3]Respondents could choose more than one purpose of using the internet.

technology by the elderly, people with disabilities, and people with low educational background.

> Not all applications are 100% friendly for people with visual disabilities. In most cases, when an application is upgraded [updated], some important talking features disappear. (Informant, male, 21 November 2022)

> Good technology companies and applications will employ people with disabilities as validators before updating. Fonts can be easily increased, so people with low vision are comfortable. We have the motto 'nothing about us is without us'. Without our validation in the application, 'no one left behind' would be impossible. (Informant, female, 21 November 2022)

IV. The Governance of Digital Transformation Is in Place yet Inadequate

Two areas of governance, i.e., platform service partnerships and data protection, are highlighted for their relevance and importance in ensuring that digital transformation can benefit all stakeholders fairly and anticipating new problems arising from the transformation. The stakeholders especially include workers and citizens as users and beneficiaries of digital transformation.

Firstly, partnerships have increasingly become the defining characteristic of today's digital-based work, as they are the go-to working relationships between gig-economy workers and platforms. Based on the 2019 Sakernas data, approximately 2.2 million workers (or 1.8% of the total workers) are gig workers[4] (Figure 7A). The majority of gig workers are those who work using technology[5] (62%) (Figure 7B), most of whom work in the transportation sector (around 60%).[6] However, based on the indicators, these numbers may already point to driver-partners of platforms and this indicates that on-demand work currently characterizes Indonesia's gig economy more than crowdwork[7]. Therefore, the governance of such partnerships is increasingly relevant to ensure that the principle of fairness is present in the process of digital transformation.

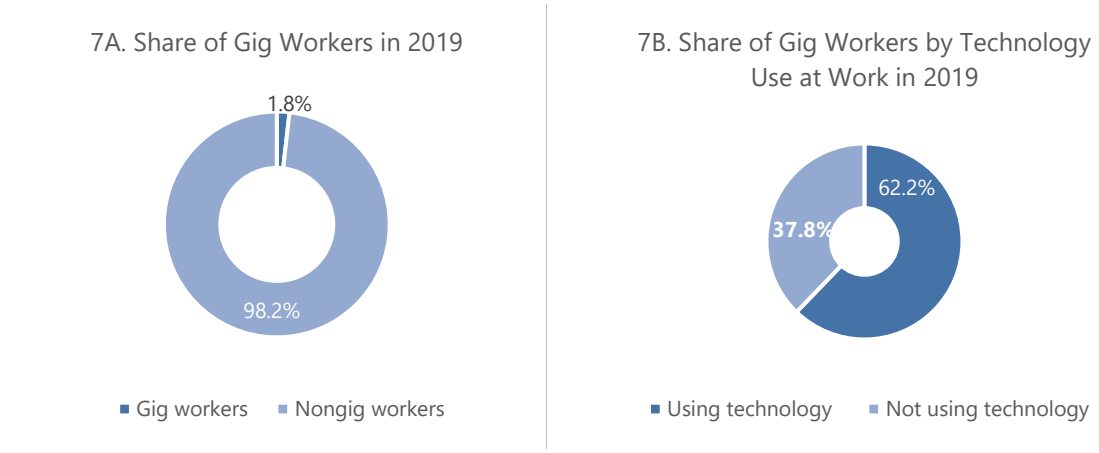
[4]Gig workers are "workers who are either self-employed or employers with temporary/family/unpaid workers but do not have full control of their businesses because of several things related to their business activities, namely having a third party (individuals/businesses/firms) regulate the price/tariff of goods and services, control the raw materials/machine and tools/capital goods, or control the access to markets/clients" (World Bank, 2021: 157).

[5]Using technology is defined as using the internet/computers/smartphones for work.

[6]We were unable to identify gig workers further due to data unavailability (Bachtiar and Berlianto, forthcoming).

[7]Stefano (2016) provided a useful typology of the two types of work in gig economy: crowdwork and on-demand work. Crowdwork refers to typically crowdsourced digitally mediated work, such as tagging photos. On-demand work refers to traditional services work, typically physical, but mediated by platforms or websites.

Figure 7. Gig Workers in 2019



Source: Sakernas 2019.

Based on our in-depth interviews and regulation reviews, we found several issues that indicate the inadequacy of current regulations and institutional arrangements regarding the partnership between platforms and workers. The inadequacy particularly refers to the governing capacity to efficiently respond to the agility and flexibility of platforms and effectively protect gig-economy workers.

The first issue that indicates such inadequacy is found in the relationship between cross-sectoral platforms and relevant government institutions. Platforms are registered in and directly monitored by the Ministry of Communications and Informatics (Kementerian Komunikasi dan Informatika, 2020). Their services are monitored by the ministries relevant to the sector. The Ministry of Transportation, for example, monitors platform-based transportation service providers, while the Indonesia Competition Commission (KPPU) monitors the partnerships between business entities[8], including between platforms and their partners, as part of a profit-sharing partnership (Law No. 20 of 2008 on Micro-, Small-, and Medium-Scale Enterprises/MSMEs).

In this context, a typical working day of driver-partners, for instance, will involve a cross-sectoral movement that weaves in and out between different governance authorities. When they encounter an issue within their work, they can either go to (i) the Ministry of Transportation for transportation tariff–related issues, (ii) Ministry of Communications and Informatics for postage/delivery tariff–related issues, or (iii) KPPU for business domination practice–related issues. The Ministry of Labor is also implicated in many instances where grievances are raised and/or demands are not met especially for driver-partners. One example of the demand raised to the government and platforms is to categorize them as workers or employees (Dewi, 2022). Added to this complexity is the question of the representation of gig workers. According to one of the organizations that handle issues between platforms and their driver-partners, with a large number of driver-partners geographically spread out, it is not clear whether a case report or conflict resolution is agreed by or can represent all drivers. There are currently no structured institutional arrangements enacted or implemented to streamline the coordination between the

[8]As driver-partners are not categorized as workers because of the profit-sharing component of the contract, they are categorized as microbusiness entities, hence within the scope of KPPU's work (Halilintarsyah, 2021).

concerned organizations. In this context, KPPU's central role can be amplified especially because they have already been involved in resolving disputes between platforms and their workers (Box 3).

Box 3
Institutional Arrangements in Resolving Disputes between Platforms and Partners

KPPU can investigate any reported violations if they are within the scope of their mandate—specifically in Chapter 35 of Law No. 20 of 2008 on MSMEs—which is on large businesses dominating or acquiring their business partners. However, based on our in-depth interviews with KPPU, it can sometimes be less clear whether a practice is a dominating or acquiring one in platform-based transportation cases.

> We can't yet say much, as there are only a few cases. This is still a new mandate. ... Normatively speaking, KPPU monitors through Chapter 35 [of Law No. 20 of 2008]. ... In the ministerial regulations, there are also points that violate the partnership agreement, and we can adopt them. Violations or not, they are also based on our coordination with the ministries, although Chapter 35 may not be violated because there are a lot of elements [embedded]. It must be proven whether they are dominating or acquiring. Is a suspension [toward driver-partners by platforms] a dominating behavior? (Informant, male, 22 November 2022)

Therefore, in the past cases, they would have to coordinate with the relevant ministries to determine whether a violation is present even if it may not be directly related to a dominating or acquiring practice. For instance, the unilateral suspension of driver-partners by Gojek is resolved with KPPU's involvement, which required a coordination with other relevant ministries, such as the Ministry of Transportation. As the ministry also monitors transportation services, a suspension case is also responded by the ministry, which is then regulated in Regulation of the Minister of Transportation No. 12 of 2019 on the Safety Protection of the Drivers of Motorcycles Used for Public Interests. Thus, institutional arrangements are possible and there are already casuistic examples.

Despite the separation of authority between government institutions as mandated by the relevant laws, the current arrangements can limit the efficiency and effectiveness of the monitoring particularly to anticipate and respond to predatory partnership practices. The crux of the issue is less on the cross-sectoral nature of the work or the involvement of multiple government institutions per se, but more on the flexibility of the platforms to develop their services as the counterpart of the governance process. As platforms are flexible in developing and providing various services, which can span from transportation, finance, and accommodation/travel to postage/delivery in a single application, institutional arrangements in responding to this kind of flexibility are needed.

Secondly, it is imperative to ensure data governance and enforcement of data protection to avoid and mitigate data-related violations, such as data breach, fraud, and scams, which have been increasingly relevant in Indonesia. For example, data breach and abuse of personal data by online peer-to-peer lending services, particularly the illegal ones, have been at the forefront of digital financial issues (Suryono, Budi, and Purwandari, 2021). Combined with the recent problems of citizenship data leakage (Alfarizi, 2022), these entwining problems can be further exacerbated if not responded and anticipated through data governance and data protection enforcement. Therefore, as data is collected and

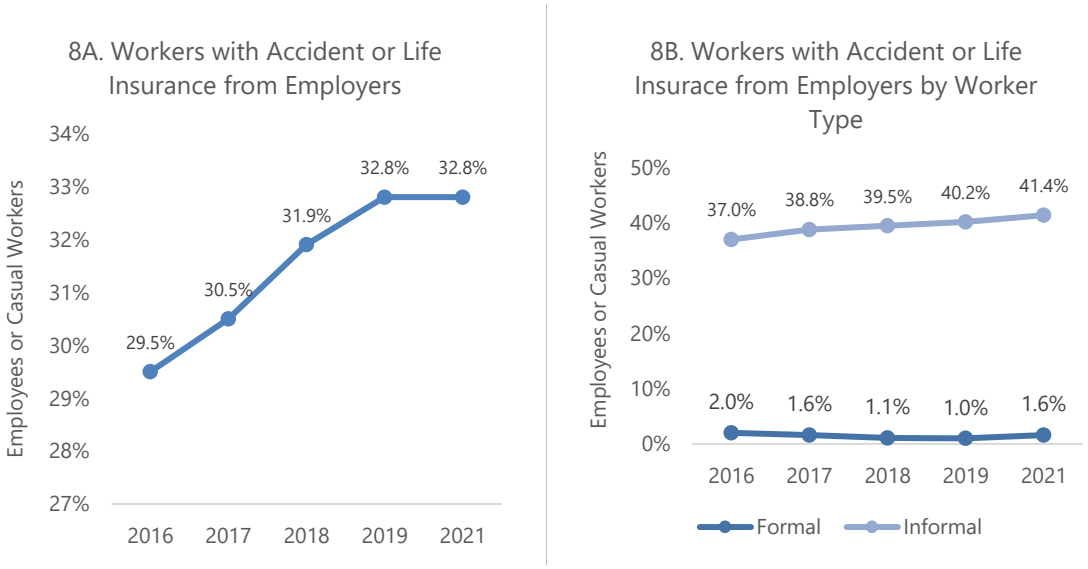
managed by more actors, including the government, establishing strong data protection governance is needed in a digitalized society and economy.

Some necessary regulations are already in place, including the recently enacted personal data protection law which is considered a welcomed improvement in data protection governance. The protection of data has been partly regulated in Government Regulation No. 71 of 2019 on the Implementation of Electronic Systems and Transactions and in Financial Services Authority Regulation No. 77/POJK 01/2016 on Savings and Loan Services Based on Information Technology in the case of e-commerce. Law No. 27 of 2022 on Personal Data Protection is a necessary improvement to the governance mechanism, as it includes a more holistic stipulation, such as the necessity for all concerning actors to strengthen the data protection system. However, the derivative and technical regulations and government institutions in charge of data protection are not established yet. Therefore, an improvement in data protection implementation and enforcement remains to be seen.

V. Protecting Gig-Economy Workers Is Urgently Needed

Another vital step in achieving fair digital transformation is to ensure that gig-economy workers are protected. However, in Indonesia, protection for workers in general is still a long work to do. Based on the 2021 Sakernas data, there are currently around 77 million informal workers in Indonesia, which means that they dominate the labor force of 131 million people in total. The government's nearest target is in 2024 when they aim to cover 11.9 million workers, which is in line with RPJMN 2020–2024. The Sakernas data[9] shows that only around 1.6% of informal workers[10] were covered by occupational accident or life insurance provided by their employers, compared to 41% who work in the formal sector. In total, only around 33% of workers were covered by occupational accident or life insurance from their employers in 2021 (Figure 8A). Based on our in-depth interviews with the Employment Social Security Implementing Agency (BPJS Employment), there are 5.1 million informal workers currently covered by social security schemes, be it through their employers, self-payment, or co-funding mechanisms. Gig workers are categorized as informal workers; thus, they are also less likely to be registered in a social insurance scheme. In other words, gig workers may be at risk of staying in a precarious working condition, which only highlights the importance of ensuring their protection.

Figure 8. Workers' Participation in Occupational Accident or Life Insurance from Employers



Source: Sakernas 2016–2021.

Lack of protection for gig-economy workers is a global phenomenon. Precariousness has been highlighted as one of the characteristics of the current gig economy (Lewchuk, 2017;

[9]Sakernas, in this context, only asked whether workers had received insurance from their employers.

[10]The term "workers" in this paper refers to the two categories of workers in Sakernas, i.e., employees and casual workers, who were given questions on social security benefits provided by their employers.

Hauben, Lenaerts and Wayaert, 2020). Lack of protection for such workers is also part of a bigger picture of minimal protection coverage for informal workers globally (Behrendt, Nguyen, and Rani, 2019). In this regard, the response model varies between countries. For example, the formalization or reclassification of several types of gig-economy workers has been a topic of public debate In several countries. The UK, for example, has formalized Uber drivers as employees through the decision of the Supreme Court (Butler, 2021; Supreme Court of the United Kingdom, 2021). Also, through the enactment of the Assembly Bill 5 in California, the USA, some independent contractors were reclassified as employees (Mcnicholas and Poydock, 2019). Besides to avoid the misclassification of workers, the formalization is adapted to ensure that workers are provided with access to worker protection, as independent contractors often lack benefits and protections, which should be received by employees (World Economic Forum, 2020). Another example is the special definition of gig and platform workers in India. Embedded in the recent enactment of the Social Security Code in India, gig and platform workers are stipulated as workers who are eligible for certain social security schemes (Chambers and Partners, 2021).

The crucial point in looking at the broader global condition is that gig-economy workers need to be protected and institutional arrangements are necessary to ensure their protection. Besides through a regulatory approach as adopted by the UK, US, and India, there are also forms of institutional arrangements enforced to streamline access to protection. For example, self-employed workers in Argentina are eligible for a simplified single payment mechanism called *monotributo*, which integrates payment of tax, social security, and health insurance components, albeit with more limited benefits compared to employees (Mourelo, 2020). In Malaysia, self-employed workers have to register to a self-employment security scheme that protects them against occupational injuries (Social Security Organization of Malaysia, 2020). The scheme was first introduced by the Social Security Organization as compulsory for self-employed workers in the transportation sector (including platform-based ride-hailing workers), which was then extended to other sectors.

Within this broader global condition, Indonesia has taken appropriate institutional arrangements by opening its social security schemes for all workers, especially those in the informal sector. In Indonesia, BPJS Employment has just recently released a public campaign that encourages informal workers to register to social insurance schemes, particularly those that protect against occupational accidents, death, and old age (Sumarwoto, 2022). Based on our in-depth interview with BPJS Employment, they have been focusing on increasing the coverage of occupational accident and life insurance schemes for workers.

Gig workers, in this context, are part of the broader focus on informal workers. Strategies to protect gig workers have been on covering platform-based drivers through, for example, their collaboration with some platforms to streamline the contribution payment of social security schemes by their driver-partners through drivers' applications. According to a presentation by the representative of BPJS Employment at SMERU 2022 Policy Forum on Poverty and Inequality held on 29 November 2022, out of around 400,000 drivers in the transportation sector, around 178,000 platform-based drivers are currently registered to BPJS Employment's schemes. They also mentioned that since 2020, there has been an approximately 63% increase in coverage of workers in the transportation sector, which is

still lower than the coverage of farmers and fishers—who are among their top priorities—with a more than 130% increase. In 2020, an online motorcycle taxi association named Garda stated to the media that the number of online motorcycle taxis was around four million (KumparanTECH, 2020). It is also estimated that up to 60% of the drivers only joined platforms after the pandemic occurred (Winarto, 2022). This is consistent with the estimation of Garda and the Ministry of Transportation that there are around 2–2.5 million online drivers (Azka, 2019), which is not much different from the number of gig workers in the 2019 Sakernas data. Therefore, there is still room to boost the coverage of social security schemes for gig-economy workers.

Considering the occupational safety risk of drivers, especially those using motorcycles, ensuring the protection of gig workers is urgently necessary. Motorcycles make up the majority of traffic accidents, as they dominate the number of vehicles in Indonesia (Jusuf, Nurprasetio, and Prihutama, 2017). With 73% of all traffic accidents in 2021 being motorcycle accidents (Dhini, 2022), motorcycle users with higher usage intensity are also exposed to a higher risk. This issue was also emphasized by a transportation expert we interviewed, "With fatigues and [accident] risks reducing their focus on the road, it could even cause a fatal accident" (informant, male, 15 November 2022). While reducing traffic accidents is already among the national priorities of the road safety plan (Kementerian Transportasi, 2011), the protection coverage is also of immediate importance. The fundamental aims of this coverage are to anticipate occupational safety risks and to prevent workers' families or dependents from an economic shock, e.g., a sudden halt of income, due to accidents.

In addition to the social security schemes' protection against occupational accidents, transportation workers also receive compensation from Jasa Raharja, a state-owned insurance company that provides traffic accident insurance. However, BPJS Employment's benefits are more comprehensive. For example, in a case of accidents requiring medical interventions, BPJS Employment will cover the person until they have fully recovered and are able to go back working without compensation ceiling. Meanwhile, Jasa Raharja sets a compensation ceiling of 20 million rupiah (Jasa Raharja, 2022), as stipulated in the Finance Ministerial Regulation No. 16/PMK.010/2017 on Compensation Amounts and Mandatory Contributions to Road Traffic Accident Funds. Additionally, the premium can be considerably affordable, starting from Rp16.800 for the lowest income bracket. According to a survey by the Ministry of Transportation's research body, most driver-partners surveyed received a monthly income of below 3.5 million rupiah (Annur, 2022), which puts them in the monthly contribution brackets of Rp16,800–Rp41,300. As a general comparison, these amounts are lower than the monthly expenditure per capita for cigarette consumption, which is Rp78,792, according to the 2021 Susenas data. Therefore, the coverage by Jasa Rahaja, albeit without additional contributory costs, is not necessarily a substitute for the existing social security schemes for workers.

It is also important to highlight that participation sustainability or continuity of payments by informal workers is also a challenge facing the social security schemes, which is especially relevant to the old age scheme. Such an issue is also addressed by BPJS Employment, "The big problem of covering those who are paid through nonemployment

mechanisms[11] is sustainability. It is a problem, indeed" (male, 16 November 2022). The informant also mentioned that among the causes of payment discontinuity is the absence of a system (or a person) that reminds workers of or charges the payment. They have been trying to resolve this issue through recruiting agents, community-based approaches, and auto debit payment mechanisms. However, the sustainability issue can also indicate an opportunity for innovations in funding and payment mechanisms.

An example of a strategy that is both trying to enroll more people and maintain their enrollment can be observed in Rwanda's Ejo Heza protection scheme. Ejo Heza is a pension scheme established to include informal workers who are excluded from the Rwanda Social Security Board's mainstream pension program (Mugisha, 2022). The program provides that workers can save flexibly (without a fixed amount and schedule) with existing incentives in place to promote sustainable participation, such as tax exemption, co-funding from the government, and national health insurance fee exemption (Rwanda Social Security Board, 2022; UNDP, 2021). These incentives are provided, for instance, if they can achieve a certain threshold of savings amounts. In this regard, some of the incentives, such as co-funding from the government, are also targeted by design for those in the lower income brackets. They also allow the savings to be used, for instance, as business capital or to pay for children's educational costs after a certain period of time, which can also bring benefits to their pension or retirement (UNDP, 2021). Therefore, innovations that cater to the needs of the target groups can be implemented as an effort to invite and sustain participation. In Indonesia, an example of such innovations is the housing provision for driver-partners in Solo (Box 4).

To conclude, a more feasible and urgent response to the lack of protection for gig workers in Indonesia would be to implement institutional arrangements that ensure their protection in the current social security schemes. As the social security agency in Indonesia is already focusing on incorporating informal workers, the next step is to ensure more precise and appropriate targeting of platform-based gig workers. In collaboration with platforms and relevant government ministries, such targeting can be translated into strategies to promote social security schemes more proactively to gig workers.

[11]There are four categories of workers in BPJS Employment's social security scheme: (i) workers who are paid by employers, (ii) workers who are paid by using nonemployment mechanisms, (iii) migrant workers, and (iv) construction workers.

Box 4
Housing Provision for Platform-Based Drivers

Perum Perumnas—a state-owned enterprise for housing provision—in partnership with Gojek, just recently launched a subsidized housing program for Gojek's partners. This program started in Solo with the aim to achieve national-level expansion. This housing provision scheme highlights two components: subsidies and installment mechanisms (Putra, 2022). The subsidies aim at reducing the total price of the house. Drivers can make a down payment of Rp2,000,000 and an installment of Rp885,000–Rp1,300,000 per month. They are also provided with an installment of around Rp40,000 per day (Alexander, 2022). The daily-payment scheme is a noticeable part of the strategy, which is appropriate for drivers' daily income.

Although it is not a social security program, this housing provision reflects a possibility of alternatives and innovations in long-term benefits that gig-economy workers can access. With suitable payment rates, funding mechanisms, and streamlined participation and payments, social security schemes may be more attractive and accessed by those working in nonstandard forms of a working relationship, such as platform-based drivers.

Indonesia's social security agency has shown an appropriate response that all workers can be protected in the schemes, which only need to be responded accordingly by the workers. However, due to the low proportion of informal workers covered, demand-creation strategies are worth exploring. This can be done by not only promoting programs, but also raising workers' awareness of long-term security and occupational risks. Besides promoting sustainable participation, an awareness-raising approach can be particularly useful because gig-economy workers are unlikely to receive social security benefits (Figure 8). Innovations in other payment or funding mechanisms and forms of protection are also worth exploring, for example, by considering workers' preference through participatory means. Co-funding has also been practiced in other countries to ensure access for informal workers. Besides Rwanda, Thailand has introduced workers-government co-funding mechanisms for informal workers since 2011, especially for the pension protection scheme (Kongtip et al., 2015). The Thai government also recently reduced contribution amounts that must be paid by the workers as a pandemic recovery strategy. Such innovation is also important to ensure sustainable participation (Thai PBS World's Business Desk, 2022). Therefore, there is still room for designing strategies to increase workers' access to social security and their participation as well as to sustain their participation.

VI. Conclusion and Recommendations

6.1 Inclusive Digital Transformation Can Start with a Discourse on the Internet as a Civil Right

Digital transformation is a multifaceted process that must benefit all. As we have discussed, it is insufficient to only ensure internet availability from the supply side, i.e., infrastructure development. Ensuring access from the demand side, i.e., internet adoption by users, is also needed. We must ensure inclusion as an inseparable part of the development process to guarantee that no one is left behind in digital transformation. The fundamental point here is that the internet should be seen as a form of human rights, not a luxury for certain individuals. The internet as a right implies 'the responsibility to provide'. In other words, ensuring the universal availability of and equitable access to the internet becomes a fundamental responsibility of the relevant stakeholders.

In this context, we encourage to start discussing the internet as a civil right. This means that the universal access to the internet is put among government fundamental responsibilities and the right to internet access is sanctioned by the law (Cerf, 2012; Bachtiar et al., 2020). Affirmative strategies are built upon the principle of 'the internet as a civil right' where the availability and access for the underserved population are prioritized. Such affirmation, in this regard, does not only refer to the availability, but also the capacity to access. It implies the importance of ensuring that users can utilize technology, for example, by improving literacy through technical training and ensuring inclusive designs of digital technology. The provision of and access to the internet must also go hand in hand with the availability of fundamental infrastructure, such as electricity and water. Therefore, the inclusivity principle is embedded into the digital transformation plan and development.

6.2 Fair Digital Transformation Must Be Built by Ensuring Protection for Gig-Economy Workers

Protection for all workers is an important principle in facing the future of work. As more workers are in a nonstandard form of working relationships where benefits are not received through an employment mechanism, social security schemes for workers are needed to ensure fair digital transformation. This principle implies that, irrespective of the categorization of workers where debates are still ongoing, social security for workers must be ensured, especially for those who are currently in more loosely regulated work. As we have discussed, informal workers still make up the majority of workers in Indonesia, where the number of platform-based workers has significantly been increasing for the last five years.

This principle can be implemented by focusing on the existing social security programs for workers. Currently, most informal workers are still not protected from occupational risks and are without insurance for old age, so they are economically at risk of disruptions or

occupational accidents. As the urgency is only increasing with an increase in digitally mediated activities and the number of gig-economy workers, institutional arrangements of social security schemes for workers are particularly a feasible strategy to improve social security coverage. Strategies that focus on informal workers are already in place and can be complemented, for example, by demand-creation strategies or innovations in payment/funding mechanisms for more targeted groups.

Demand-creation strategies, which span from increasing awareness to increasing network effects, can be useful in responding to the issue regarding the sustainability of informal workers' participation. Innovations in payment/funding can also be explored regarding the co-funding mechanism, such as observed in Rwanda's insurance for workers, especially for informal workers in the lower income brackets. An example of innovative payment mechanisms is by exploring the possibility of integrating the payment of social security schemes for workers with the existing National Health Insurance (JKN) in Indonesia, such as observed in Argentina. The aim of such integration is to streamline overall protection payments, which would not only benefit digital-based workers.

Additionally, improving governance of platform services and data protection is needed. Institutional arrangements to manage the current pattern of working mechanisms, such as partnerships, can be incorporated to further ensure the protection for workers from predatory partnership practices and improve governance responsiveness. It is also necessary to enact technical regulatory instruments and establish governing bodies for data protection to improve the current data protection system. The capacity to enforce data protection is especially important to not only develop a personal data protection system, but also swiftly respond to cases, such as data breach and fraud, that have been increasingly prevalent.

To conclude, disruptions have been at the forefront of development in recent years, particularly regarding the discussion about the future of work. The increasing relevance and availability of the internet and digitally mediated activities—as the effect of the pandemic—have only highlighted the importance of inclusivity and fairness principles in ensuring that digital transformation can benefit all. However, it is also important to highlight uncertainty as a key characteristic of disruptions, as observed during the pandemic. Therefore, evidence-based policymaking processes backed by research and data that address innovations in digital technology to anticipate the future of work are of importance.

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