

The future of work in Indonesia

Key actors' socio-economic and policy perspectives
on work transformations in public and private sectors

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January 2025

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Key points

- Technological transformations such as automation and robotics have brought changes in how people engage in work. Many scholars argue that massive and fast-paced technological innovations such as artificial intelligence and platforms could accelerate the changes in the field of work even faster.
- Discussions on the Future of Work have sparked optimistic and pessimistic scenarios on its implications. In Indonesia, the need to address concerns about digital modernization in the work sector is inevitable. It demands enhanced intergovernmental coordination and greater involvement of non-governmental actors.
- This study presents findings from a focus group discussion inviting government officials, academics, labor unions, NGOs and relevant stakeholders who explored the challenges and opportunities in the world of work arising from digital transformation in Indonesia.

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The future of work in Indonesia

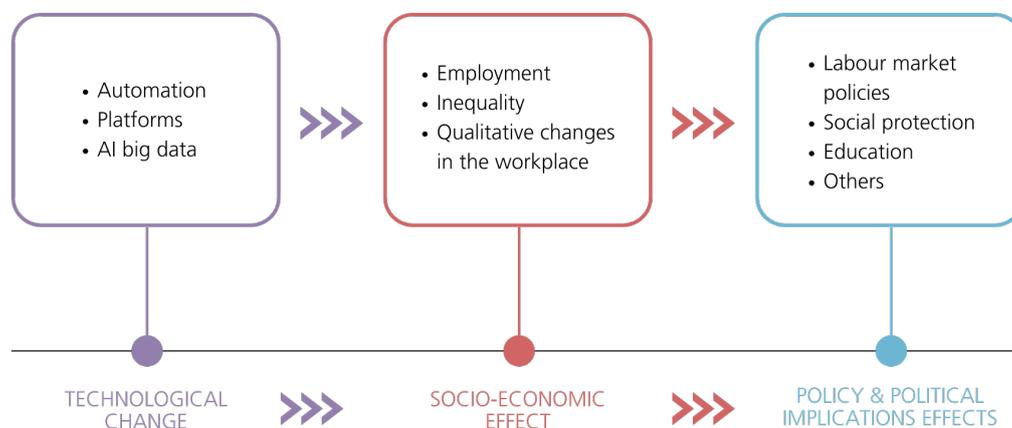
The Future of Work (FoW) has become a paradox: while we refer to the FoW as the way technology will affect our work in the future, not only is the future already here, but it is also constantly changing. And it is changing at an ever-increasing speed. Indonesia is a good example of this. Around 2010, the FoW mainly referred to the role of platform economies and gig workers, for instance, in the ride-hailing sector (Kemmerling & Ranawijaya, 2024).¹ Some five years later, the discussion about bots and robots peaked with concerns about the employment effects of automation. Since the breakthrough of ChatGPT and similar autonomous large language models, the public debate is captivated by the potential of artificial intelligence (AI) to transform jobs.

Hence, technological disruptions are arriving with increasing velocity, creating hopes and fears among the

general public and policy experts alike. For Indonesia, however, there is a relative lack of information about the socio-economic and policy implications of the FoW (e.g. Kemmerling, Ranawijaya et al., 2024). In this working paper, we summarize information collected from an expert workshop and other sources to analyse how the FoW is discussed in Indonesia. We are particularly interested in disruptive technological changes in the labor market, their socio-economic consequences, for instance, employment and inequality, and their policy and political implications. Figure 1 shows the chain of possible events we want to trace.

Hence, we are interested in three major recent technological innovations: a) platform work and the gig economy, b) automation processes both virtual and physical, as well as c) the AI and Big Data Revolution.

Figure 1. Technological change and its socio-economic-political effects



Source: Achim Kemmerling and Viddy Ranawijaya

1 We conducted a systematic literature review on digitalization, the Future of Work, and their consequences on innovation and labor policies in three regions (Africa, Asia, and Latin America) to find common frames, themes, and the state of research. Out of 132 journal articles, proceedings, and book chapters, only 7 research outputs discuss Indonesia, compared to 35 for China and 31 for India, for instance (Kemmerling, Ranawijaya et al., 2024).

We will use the short-hand word 'digitalization' for those changes, knowing that this is a somewhat vague umbrella term (e.g., Busemeyer et al., 2022). The working paper investigates how digitalization transforms the labor market in terms of employment and the way we work. For instance, will it create new jobs or mainly destroy old jobs? Will some sectors disappear while others rise? Furthermore, what will this imply for socio-economic

inequality between different segments of the population (e.g., in urban vs. rural spaces)? Will it further increase the digital divide? Finally, we are interested in analysing what kind of responses the government and other stakeholders will present in order to meet these challenges.

These are big questions, but they are rarely systematically addressed in Indonesia due to a certain tendency towards siloing and fragmentation among policy experts and decision-makers alike, not only in Indonesia but in many other countries as well (Kemmerling et al., 2023). Our main motivation for hosting this workshop was, therefore, to bring together experts covering major perspectives – technology, politics and administration, private sector, research and media – to search for common visions and perhaps also to identify zones of disagreement. The workshop is in line with and is a part of our project “Politics and the Future of Work in Middle-Income Countries (PolDigWork), funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation). Moreover, we would like to acknowledge our partners who are holding this workshop: the Faculty of Administrative Sciences of the University of Indonesia and the Center of Economics and Law Studies (CELIOS). Further, we thank the Friedrich-Ebert-Stiftung’s Asia regional program on the Future of Work in Manila for their support.

Asking experts about their scenarios for the present and not-so-distant future, we wanted to get insights on a) how they assess the size and nature of the disruptions and b) evaluate the need for government policies, as well as profit and non-profit private sector initiatives. We were interested in both the factual descriptions of changes, needs, and demands and the kind of narratives experts have in mind when discussing the FoW in Indonesia.

Here are some of the shared ideas, as well as areas of disagreement. First, all participants agreed that to harness the potential of digitalization, people need to learn how to use technologies, i.e., they need reskilling and upskilling. Second, and related to this, all concurred that digitalization, left unchecked, will create further divides and inequalities between genders, between the urban young and the rural elderly population, and lastly, between those with access to technologies in general and those without. Furthermore, all sides considered

that the structure of the Indonesian labor market poses specific challenges for policy responses. The most recurrent concern is the high degree of informality. However, many experts also mentioned the sheer size and heterogeneity of the country, which gives rise to different types of vulnerabilities, not only due to technological transformations but also because of other risks, such as those arising from climate change and environmental degradation.

When moving to the policy domain, unsurprisingly, agreement was not always a given. The need for better curricula on all levels of the education system is uncontroversial, but given the rising speed of technological innovation and the time lag with which education systems tend to respond, predicting skill needs in itself is difficult. Another policy change desired by most experts concerns the governance of the FoW. Most participants agreed that Indonesia needs more of a common strategy, led by the government and preferably spear-headed by a common digital agenda or even a specialized ministry. Including non-governmental stakeholders and establishing a social dialogue is seen as crucial, but many experts do not see enough political will for such a dialogue to occur. Social protection for digital workers, as well as labor rights, are also important topics, where many experts found that change was necessary but where policymaking has not advanced very far until now.

In section 2 of the paper, we will review important contributions to the FoW debate and the concept of our expert workshop. The next section then presents the findings from the workshop. We will draw our conclusions and present larger implications in the fourth and last section of the working paper.

The future of work debate in Indonesia

Indonesia offers a compelling case for examining the Future of Work due to its diverse economy and evolving labor market. Traditionally reliant on industries like tobacco, mining, and fossil fuels, the economy is shifting toward services, particularly in the non-tradable sector (Morley et al., 2019). Its thriving tech sector, home to startups like Gojek and Tokopedia, is also reshaping the digital economy. A notable example is the appointment of Gojek's former CEO, Nadiem Makarim, as Minister of Education, Culture, Research, and Technology in President Jokowi's administration (2019–2024).

The government supports this digital shift with initiatives like the 'E-Commerce Roadmap,' aimed at integrating small and medium enterprises into digital platforms, and the 'Trading through Electronic System' (Perdagangan Melalui Sistem Elektronik, PMSE) law regulating e-commerce, from payments to data protection (Utami et al., 2022). Additionally, the 'Making Indonesia 4.0' initiative, launched in 2016, seeks to modernize the manufacturing sector through automation and increased productivity, positioning the country for increased industrial growth by 2030 (Hidayatno, 2019).

The government's focus on the digital economy is mainly due to its promising value to the country's economic growth. Indonesia's Minister of Finance, Sri Mulyani, stated that the growth created by the digital economy is not only related to tech startups and e-commerce but also to well-established entities that have transformed their conventional way of working towards digitalized forms (Ministry of Finance, 2022). This statement is strengthened by various reports, including the e-Conomy SEA 2022 of Google alongside the investment company Temasek and the consulting firm Bain & Co., which reported a constant increase of digital economic value since 2019 and projected that it could reach US\$ 360 million by 2030 based on Gross Merchandise Value (Google et al., 2022).

Apart from that, the development of the Indonesian digital economic sector is projected to bring growth in the demand for jobs in the information and technology sector. The Ministry of Manpower projected in 2021 that the need for manpower in the IT sector would increase by 200.000 – 250.000 workers each year. Although it

Figure 2. Indonesia's (projected) overall digital economic value based on Gross Merchandise Value (Billion USD) according to Google, Temasek, and Bain & Company

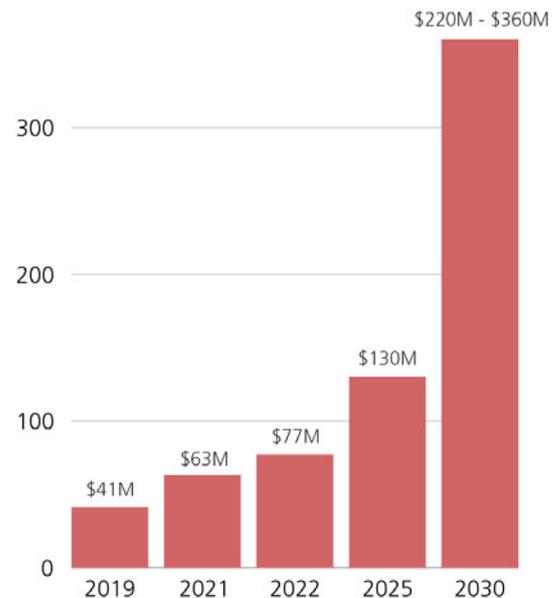


Figure by Achim Kemmerling and Viddy Ranawijaya

Figure 3. Projection of the Workforce Demand in the IT Sector from 2022-2025, according to the Ministry of Manpower

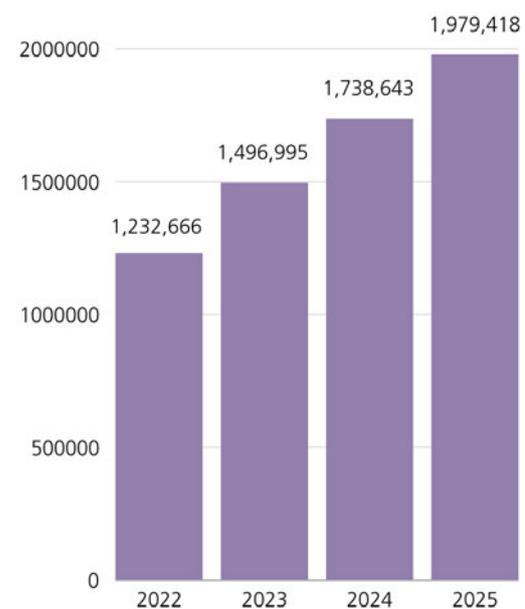


Figure by Achim Kemmerling and Viddy Ranawijaya

is not explicitly mentioned, jobs that are created due to digitalization, both current and in the future, are not limited to the IT sector only. Therefore, it is possible that other sectors, such as retail and wholesale, transportation, services, and the creative industry, will experience growth as well.

The Future of Work has also drawn attention among scholars in Indonesia, especially within the legal and policy scholarly community. One of the most cited works comes from Adha et al. (2020), which focuses on the industry and manufacturing sector. The paper argues that Industry 4.0 has created an impact on the labor sector and employment relationship in Indonesia through automation created by technological change such as artificial intelligence, robotics and the so-called Internet of Things (IoT) or an embedment of the Internet in everyday objects. By analysing law and government policies such as the National Industrial Policy 2015-2019, Law no. 3 2015 on industry, and Regulation no. 14 2015 on the National Industrial Development Master Plan 2015-2035, the paper identifies that job losses will highly impact the manufacturing, retail, and transportation sectors, while the information technology and financial sectors will develop some new jobs.

Another valuable contribution originates from Kurniawan and Aruan (2021). The paper discusses the impact of digitalization in the work sector and the government's policy responses through a desk study of data from the Central Bureau of Statistics, the Ministry of Industrial Affairs, and the Ministry of Manpower. One of the key arguments is that digitalization deducts jobs in formal sectors while creating jobs in informal sectors, especially in e-commerce and online transport.

The two contributions are indeed valuable in starting the debate on the Future of Work in Indonesia. However, seeing that their desk study focused on analysing governmental law and policy documents, we believe in the necessity to explore further perspectives from policy actors, associations, and practitioners. By doing so, we expect to deepen our knowledge in many other facets of the realm of Future of Work in Indonesia, especially beyond manufacturing, transporting, retailing, and all other sectors that those papers have discussed.

Given the dynamic nature of the debate and the problem of fragmentation, we decided to hold an expert workshop at Universitas Indonesia, Jakarta, with 38 participants who had backgrounds in the public and private sectors as well as academics, think tanks and foreign NGOs and agencies in Indonesia. Among the representatives from public sectors were five ministries (Education, Culture, Research and Technology; Communication and Information & Technology; Finance; Economic Affairs; and the State Secretariat), a Social Security Agency, a Civil Service Agency, and a National Research and Innovation Agency. Additionally, four representatives from two labor unions were present, among them the Association of Ride-hailing App Drivers and the National Labor Confederation. Academics from two universities also participated, namely from Universitas Indonesia and Universitas Gadjah Mada. Finally, there were also various Think Tanks and foreign NGOs and agencies whose focus lays on issues such as digital transition, development, and labor topics. The composition of male and female attendees was not in strong disproportion, comprising 20 male and 18 female attendees.

On the other side, the technology sector was not really present, with the exception of one of the biggest platform companies in Indonesia. Among others who were invited but not present were the Ministry of Manpower, Industrial Affairs, Trade, National Development Agency, and companies/trade unions from sector-specific industries, such as agriculture, forestry, and MSMEs. Although we are confident of the wide representation in the workshop, the underrepresentation of some equally crucial sectors, including those from other regions than Jakarta, means that we unfortunately have not been able to cover all perspectives from relevant stakeholders.

The workshop was conducted in an informal setting and according to Chatham House Rules. This meant that we did not divulge individual assessments without clearance. The workshop had two rounds plus a concluding session. The first round was about sizing up the disruption by looking at the socio-economic impact of new technologies in the workplace. In the second round, we focused on policy implications and future scenarios of this impact for the government sector, as well as for all major stakeholders, including companies and non-governmental organizations. Further information was

collected through individual follow-up interviews with trade union confederations, think tanks, attendees, and others who were not present at the workshop. Finally, we conducted observations and interviews with ride-hailing drivers during our research in Bandung and Jakarta.

Common areas and zones of disagreement

As mentioned, the workshop had two major rounds. In the first round, we investigated which types of technologies experts mainly consider when thinking about the FoW and, moreover, what kind of socio-economic consequences these new technologies might have. We were interested in not only the situation of Indonesia today but also the experts' evaluations for the near future.

Socio-Economic Consequences of New Technologies in the Sphere of Work

Given that our questions were very open by design, participants came up with very different aspects of the FoW. All technologies mentioned in the introduction were discussed but with differing saliences. Perhaps the least number of concerns was raised about automation. This might come as a surprise for experts in OECD countries, given that some scientific projections are fairly alarmistic. Famously, Frey and Osborne (2014) claim that up to 50 % of all jobs in the US could be substituted by automation and, hence, possibly be redundant in the next few decades. This study, in particular, has received a lot of attention and has been replicated numerous times in Indonesia (Das et al., 2019). It has to be said, though, that not all economists agreed with Frey and Osborne's conclusions. For instance, Arntz et al. (2017) use a different approach, less based on occupations and more on specific tasks and find much less potential for automation in the short to medium run.

Moreover, studies on Indonesia, such as McKinsey (2019), estimated that new technologies could also create new jobs, perhaps twice as many as they destroy. Indeed, many experts who attended the workshop also shared the view that new technologies have great potential for enhancing productivity and creating new sectors entailing new jobs.

Nonetheless, there were also critical voices. Representatives of the Association of Ride-hailing Apps Drivers highlighted the problem that the next round of automation may potentially include driverless cars. This would affect the jobs of some 4 million drivers registered on all ride-hailing platforms in Indonesia. Hence, there is some discrepancy between the current situation, which is

seen as fairly pragmatic, and the future, for which there are concerns about new waves of innovation.

Compared to automation, the modalities of platform work represented a more salient topic in the discussions. This is not surprising, especially in Indonesia, due to the prominence of Gojek and Grab, two significant platform companies. Worldwide, similar platforms have raised important questions about social and labor rights for those involved, given that platform work goes at the heart of typical forms of employment. In contrast, for traditional formal sector work, most economically active people can be easily slotted into three categories – employer, employee, or self-employed – platform work is more complex. In most countries, the platform, usually run by one major company, is not, or only to a marginal degree, a direct employer in legal terms. Rather, the platform offers services for independent service providers who are looking for customers. Hence, the relationship is triadic or, in some platforms, even more complicated. The traditional model of formal employment is the exception in platform work, with all that this implies for labor rights, tax obligations and social protection for such workers. This is a major bone of contention in many countries around the world.

In Indonesia, the situation is similar to that of many other middle-income countries. For instance, drivers or delivery services are self-employed but effectively work for one or very few big platforms. According to Indonesian law, the drivers work under partnership status, which is not considered an employment relationship with the platform company (Santoso et al., 2023). Although social security coverage is considered a necessity for both formal and informal workers, the government has not introduced any regulation that obliges workers to register for one. In this sense, the platform company has no obligation to register its drivers to the government's social security scheme (Nurhadi, 2023). Our interview with ride-hailing drivers shows that the platform companies offer the driver to be registered in the social security system, for example, including statutory health insurance, work-related accident insurance, and a pension scheme. However, participation is voluntary, and the company does not have any obligation to pay a part of the contribution for social security schemes, as is the case in

a regular employment relationship between a company and its workers. This lack of legal status for platform workers creates numerous forms of risks ranging from non-insured workplace accidents to undercoverage in social insurances. Several participants of the workshop highlighted those risks for platform workers in terms of social security and employment rights.

The legal status of platform workers is one of many facets of the Future of Work that the recently enforced Omnibus Law on job creation does not address. The law that was enacted to attract foreign investments, especially those that the government hopes to create jobs, is prone to criticism due to some controversial clauses that sacrifice the social security and well-being of the workers. These clauses include longer working days and extra hours, loopholes for unilateral layoffs, and the elimination of rules that regulate sanctions for non-payment of wages (Zubi et al., 2021). The mentioned clauses are considered a disadvantage for workers who face the threat of job cuts owing to automation and other forms of digitalization, especially when reforms that favour workers' rights are yet to be seen.

The final and perhaps most salient category of technological change mentioned in the workshop was artificial intelligence (AI). Interestingly enough, experts also grapple at times with what AI really means. For instance, one participant observed that in Indonesia, there was a lot of discussion on AI, but it is rarely really applied. People are sometimes confused as to what counts as AI and what does not. Nonetheless, many agree that the potential, both positive and negative, is enormous. Workshop participants from a platform company, for example, will see more positive consequences of technology if Indonesia learns how to use those technologies well. Others also considered the problematic sides. AI can mean both enhancing productivity and creating more demand for certain types of products or services, but also rationalizing production through labor-saving technology. While the technology is still in its infancy, some Indonesian companies already use it extensively. For instance, PT Indofood, one of the country's largest fast-moving consumer goods companies, uses it for the design of marketing campaigns (Widagdhaprasana, 2024). Aside from that, AI was also used by the winning candidate in the 2024 presidential election in Indonesia.

The campaign team of Prabowo Subianto and Gibran Rakabuming said that their campaign ads were purely generated by AI, which converted (prompt) text into images for the ads (The Jakarta Post, 2023).

What are the socio-economic consequences of these technologies? One first point is that one needs to reconsider what the role of human beings in economic activities is and how to adapt to a new world of work. Work will change, and it will be important to see to what extent a 'human element' will remain in economic activities. For instance, one academic mentioned that university teachers currently go through several stages of adoption and adaptation: In the first stage, colleagues learning about ChatGPT were shocked and feared for their jobs and for the way how, for instance, student learning outcomes can be assessed. In the second stage, and rather paradoxically, colleagues returned to even older technology, letting students write exams with paper and pens. In the third stage, only very recently, colleagues started to think about how to include AI in teaching and also in assuring learning outcomes.

While there is some disagreement about the net total impact of new technologies on employment, everyone agrees that some segments of the population benefit much more than others do. Among the potential winners are younger people, those living in urban centres, often male workers, people commonly using new technologies already, and people working in specific growth sectors of the digital economy. The flip side, of course, is that older people, those with disabilities, often female workers and those in the countryside lose out. In other words, digitalization will lead to new divides, from the well-known digital divide (Van Dijk, Gunkel in Van Dijk (2005); Dewan & Riggins, 2005) of those proficient in and using modern technology and, on the other hand, people with severe problems of access and usage. This means that vulnerabilities can be multiple and reinforcing.

The last and perhaps major concern was about the high level of informality in the Indonesian economy. One participant called it "the elephant in the room", a topic so big and ubiquitous that it overshadows many other concerns. In this regard, digitalization is an intriguing phenomenon, for it could lead to more formalization of work relationships but, on the other hand, entail more

informal work. Ride-hailing is an important example. Theoretically, it would be easy to monitor these economic activities to formalize jobs since the big platform companies dispose of all the necessary data about the nature of the services. For instance, this includes the time worked on the platform, the amount of income generated, and the shares of the income distributed between the platform and the service provider. In practice, however, few countries have systematically used this information to insert those forms of activities into the formal sector fully.

In part, this is a problem enhanced by internationalization since platform companies are often multinational companies, which makes it hard for tax and social administrations to see where exactly income and profits are being generated (e.g., Gelepithis & Giani 2022). It is also a question of how much the government authorities insist on monitoring these activities more closely. Similarly, this applies to e-commerce platforms and many more types of activities. Again, the problem of formalization might seem overly simple, given that government authorities themselves are fragmented. For instance, very often, platforms struggle with whom to report to, as one participant observed. Usually, a multitude of different functional and geographic public sector authorities need to get involved in the regulation of platform activities. Moreover, the digital economy also finds new ways to obfuscate traces of economic activities, e.g., by the use of cryptocurrencies (Goldfarb & Tucker, 2017).

Policy Consequences of the Future of Work

Given the highly dynamic nature of the FoW, simple policy conclusions are hard to find, even among our experts. One concern, mainly raised by representatives of workers' movements and trade unions, is the weakness of labor rights in Indonesia in general and in the digital economy in particular. One participant mentioned that labor law itself needs to be reformed to acknowledge the fact that legal problems no longer consist of simple binaries such as 'dependent employee' vs 'self-employed'. The example of platform work shows that there is a vast and increasing gray area. If the jurisprudence on this topic continues to use a very narrow definition of dependent employment, its rulings will become ever more meaningless for the majority of the economically active population (Fudge

et al., 2002; Neufeind et al., 2018; Nurhadi, 2023). Indonesia is an important case to observe this, but it is true for many countries, especially for those with high degrees of informality.

One particular means of strengthening labor rights for digital workers would be to give organizations that represent them more ways to participate in economic and policy decisions. The empowerment of digital workers was mentioned as a recurrent demand from those representing them. How exactly such representation and empowerment should look like differs from participant to participant. Some experts put more emphasis on social dialogue to happen either in a tripartite mode (i.e., including governments, private sector companies, and workers' representatives) or specific policy initiatives of the government. Others took inspiration from European examples such as the German workers' council model. In this respect, the Indonesian context is very different: Indonesian law only recognizes formal workers' unions (article 104 paragraph (1) of the Employment Law and Article 5 paragraph (1) of Law 21/2000) and is yet to recognize the rights of independent workers (e.g., ride-hailing drivers) to form an association and to act as companies' negotiation partners (Situmorang, 2024).

Another important policy dimension discussed was social protection. Here, most experts agree that Indonesia has made great strides in recent years. The statutory health insurance membership has increased from 48,5 % in 2014 to 97 % in 2024 (Nurmutia, 2024). Similar developments can be observed for workers' social security membership, which has increased from 35,96 million in 2022 to 41,46 million members in 2023, a 15,89 % increase (Indonesian Social Security Agency BPJS Ketenagakerjaan, 2024). Nevertheless, again, informality looms large in the effective implementation of social protection systems for many segments of the population. The number of informal workers in the social security scheme is only a small portion of Indonesia's 280 million population. According to a representative of an invited think tank, only 0,5 % of those registered in the scheme are informal workers. Being the newest pillar of social protection in Indonesia, the unemployment benefit [Jaminan Kehilangan Pekerjaan (JKP)] scheme's-coverage is very low, and the thresholds for receiving benefits in times of unemployment are so high that few workers in the digital

economy would qualify for them. The representative of the social security agency mentioned that one reason why platform workers refuse to contribute to the social protection scheme is the low income (salary) generated. This echoes the concerns expressed by a ride-hailing driver, who hesitates to pay the contribution because their platform company is not required to share it. The participant stressed the need for automatic enrollment, especially for those informal workers registered under digital platforms. From a technical point of view, this would be easy.

The formalization of digital workers should hence also mean more than just paying taxes and making social security contributions. However, for those involved in these types of activities, these benefits are often not very visible. For instance, they do not see any immediate benefits in paying into health benefits if they do not feel the risk of accidents or severe illnesses. As a representative of an international agency said, there are also huge implementation issues when it comes to administering social security systems in Indonesia.

A third policy domain, perhaps the one that attracted the most attention, was education. As said before, re- and upskilling is an almost unanimous policy conclusion. The representative from a platform company mentioned the need for more STEM education (science, technology, engineering, mathematics). Others highlighted the importance of cognitive skills and social skills. In this regard, experts were alarmed about the legacy of the COVID-19 pandemic. Nowadays, many young people show symptoms of social anxiety and problems of mental health. Somewhat paradoxically, digitalization has led to both more anomie in modern society – that is, people feel increasingly without social orientation and social bonds (e.g., Marx in Busemeyer et al. 2022) – and to increased pressures for human beings to be socially smarter than intelligent algorithms and machines. In other words, while technology isolates human beings from each other, using new technologies requires human beings even to be socially more intelligent.

As a consequence, many experts agree that social skills will be as important if not even more significant than technical and cognitive skills in the future. We need to think about better ways of acquiring hybrid skills, i.e.,

those skills combining technical and social skills. We live in a world where people increasingly need to convey expertise on complex technology to people with relatively little exposure to or knowledge about those technologies. Hence, education systems need to train people who are good at both, not only creating isolated segments of social and technical workers.

One particular problem mentioned was the increasing speed of innovation, which makes it hard to predict, codify, and certify important skill sets. To make matters worse, (public) school systems and technical and vocational training (TVET) systems often lag behind in those trends. It takes a long time for a centrally administered and harmonized curriculum reform to be adopted and then implemented in a country as large and as heterogeneous as Indonesia.

Some observers remarked that for many young people, it might simply be more accessible to start working as a driver for a platform than investing in their education and training. Such behaviour is entirely rational, especially in times of high uncertainty and rapid depreciation of technical skills. Under such circumstances, education systems need to be characterized by much agility: they need to be adaptive to new skill demands, they need to foment a culture of life-long learning, and they need to teach how to learn rather than what to learn.

Education systems also need to be pooling risks to make sure that those rational dilemmas do not occur. A look at history is valuable here. While, for instance, machinists and skilled workers were crucial in the rise of industrialization in many countries, their skills were highly firm-specific and often lost their value for other sectors. In those cases, investments in education happened where it was financed by firms cooperating or the government stepping in (e.g. Hall & Soskice, 2001). In this regard, education systems try to anticipate skill demands. This is difficult if technological change happens rapidly. As a result, education systems need to be aware of their time lag problem. Otherwise, there could be a dynamic instability and mismatch between skill supply and demand, as seen in previous decades in which the signal of which skill to invest in came so late that it became counterproductive (Neugart & Schömann, 2002).

The final set of policy conclusions deals with the governance of the FoW. Many experts agree that there is no overarching ‘grand’ strategy for tackling the socioeconomic problems mentioned. As mentioned by several participants, Indonesia does not have a Ministry for Digital Affairs, unlike, for example, Thailand. There is no specialized government agency for this topic, although there are numerous activities and efforts to harmonize and bring more ministries and government agencies together. A participant from a think tank mentioned that a Project Management Office (PMO) to regulate the digital economy was planned by the Coordinating Ministry for Economic Affairs, as well as a “White Paper” for the digital economy. The past is an important teacher in this regard, as one participant highlighted. Indonesia had a fledgling semiconductor industry until the mid-1980s when the investors decided to pull out the investment due to the banning of robot usage in the industry, as well as a capitalist-friendlier industry policy abroad (Yanwardhana, 2024; Airlangga Hartanto in Afriyadi, 2021). Nowadays, neighbouring countries such as Malaysia have a considerable semiconductor industry, while Indonesia has missed out on this opportunity. This shows both the problems of foresight and grand vision and the resulting lack of investment, research, and development. Such strategic vision will also be important in the face of the global rise of protectionism and the importance of geo-economic and normative interests that affect global value chains.

New technologies have arisen in the meantime, and once again, the question is whether the country has the capacity to engage in strategic industrial policy. For instance, Indonesia might nowadays benefit from having large-language models specifically trained for Bahasa Indonesia and the language-specific sensitivities for the country and the region, as one expert mentioned. It might also benefit from having industries developing solutions for the AI revolution because, like many countries in the world, Indonesia will become increasingly dependent on foreign service providers. However, some participants stated that public sector initiatives are, in general, too slow and need to become more agile for such strategic foresight to work effectively. Public sector projects are also, at times, too narrowly focused on very visible but short-lived projects, such as highly specific apps with very short life cycles. One example is the “Pusaka” app

that focuses on the education and the job market for experts of all six religions in Indonesia, and it was only downloaded by 100+ users. Another example might be the Ministry of Defense’s Visitor Management App, which was intended only as the ministry’s guest book and was downloaded less than 10 times (Tuasikal, 2022).

Similar problems of lacking strategic foresight arise in the realm of cybersecurity. The recent ransomware attack that affected the Temporary National Data Centre (PDNS) has shown that Indonesia is vulnerable to such types of risks. However, the topic is rarely discussed in the context of the FoW (Kemmerling & Ranawijaya, 2024). What is often overlooked is that digitalization brings new venues and new opportunities for theft and abuse of data. In as much as digitalization and the digital economy, often by design, produce huge datasets with numerous forms of sensitive but commercially relevant data, there is a new business model of data theft. Many parts of government, such as the human resource departments of private companies, are not yet fully aware of the enormous incentives for criminal activities. The problem might be so severe that it throws a spanner in attempts to unify large public (or private) data registries and databases. A higher degree of harmonization and interoperability will definitely increase the cybersecurity risks.

All in all, many observers saw deep structural problems of ineffective policies in the way policies are made. Problems of myopic, short-term governance often find their ultimate reason in a political system that mainly “thinks from election cycle to election cycle” rather than developing a strategic, long-term vision.

Conclusion

This working paper provides an overview of the state of the debate on the FoW in Indonesia. We mainly relied on external sources and the results of an expert workshop in Jakarta, which brought key stakeholders together.

We found interesting room for advocacy coalitions to explore, especially in bringing stakeholders together and avoiding fragmentation and siloing of expertise. Indonesia is not the only country faced with these obstacles. We found similar problems arising in other middle-income countries, such as Mexico (Kemmerling et al., 2023). Hence, bureaucratic politics is an important part of engaging with digitalization. We need to learn how to incentivize different parts of government to work together. Especially for the public sector, it is important to diminish the fear of digital modernization while also acknowledging important risks of disruptive technologies in the government sector. In this sense, it is interesting to take note of neighbouring countries such as Malaysia, where the digital agenda seems to be relevant regardless of the political inclination of the incumbent government running the executive (Lee, 2022).

Similarly, an often-raised concern lies in the lack of participation of non-governmental actors. Social dialogue is a key component in reaping benefits from technological progress and helping those falling behind. We did not note much controversy on this topic in the workshop, yet it is also clear that there is little political activity so far to empower working-class voices and engage with them constructively. On the one hand, the digital sector – and platform companies in particular – seem hesitant to join those demands for more cooperation and empowerment of platform workers. Perhaps the priorities of government agencies and big tech companies often lie elsewhere; that is, tech companies want to generate profit, and the government wants to develop the digital economy rather than protect its workers. In this regard, politics needs to balance the interests of the Indonesian population against those of the big and powerful vested interests. In this sense, the Omnibus Law does not seem to be the right approach to make everyone benefit from the Future of Work.

Finding solutions is not easy, given the size of the challenge and the complexity of the issues. For instance, a lot of

comments went into the direction of running targeted programs of assistance, retraining and protection for specific segments in Indonesia, e.g., the countryside, the disabled or elderly population. Those programs are definitely important, but they go against a more general insight about social policymaking: universalist solutions tend to be more effective in socio-economic and political terms, as a large body of literature has shown (e.g. Devereux chapter in Handbook of Social Protection Systems; Sarah Brooks the politics of Social Protection in the global South in Handbook on social protection). This requires a careful balance between both approaches and the development of targeted programs that can be harmonized into universalist solutions.

Another advantage of universalist solutions is that they are easier to administer and can rely on a centralized administration. However, the nature of the technological disruption is rather asymmetric also in a geographic sense. To help those regions and people falling behind, some decentralized assistance is necessary, accompanied by some equalizing mechanism. So, the Future of Work will have important consequences for Indonesian polity and its balance between urban centres and the rural periphery.

One recurring concern is the acceleration of technological change. As described above, for example, this makes predicting the demand for skills more difficult. New solutions need to be not only agile but also robust to new challenges. In this regard, the narratives on how to deal with technological challenges will be crucial. Several experts made references to the government's discourse of a golden generation (Generasi Emas 2045), reaping the benefits of a demographic 'bonus'. However, without real help from people old and young, such a discourse easily regresses to mere buzzwords in the eyes of some participants. In this sense, a narrative based on inclusive growth creating decent jobs should replace a logic that sees the young generation only as a quantity or resource.

All things considered, it will be important to find new and convincing narratives, especially in an age of artificial intelligence. Most importantly, automation and AI increasingly include tasks and activities we always believed only human beings could do, from routine tasks

such as filling out insurance forms to creating commercial slogans or writing newspaper articles. What images will Indonesians use to define their own social and economic identity in a world where, increasingly, even intelligent and creative tasks are performed by machines? What value will Indonesians ascribe to human-created vs. non-human-created content? Those questions will be crucial for a society in which people tend to live in very different worlds when it comes to modern technologies.

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This working paper is a collaboration between the Willy Brandt School of Public Policy at the University of Erfurt and the Friedrich Ebert Foundation (FES) in Berlin, and supported by Indonesian local partners, the Center of Economic and Law Studies (CELIOS) and the Faculty of Administrative Sciences, University of Indonesia. It is a product of the project PolDigWork – Politics and the Future of Work in Middle-Income Countries – funded by the Deutsche Forschungsgemeinschaft (German Research Foundation, project number 504172432).

About the study

This paper presents and analyzes the findings from an expert focus group on the Future of Work in Indonesia that brought together representatives from public and private sectors in Indonesia, including government ministries, trade unions, think tanks, industries, and academia. The workshop's goal was to connect the fragmented discussions and encourage dialogue between sectors, gather diverse perspectives, and explore two important topics: socio-economic consequences of new technologies in the sphere of work and policy consequences of the future of work. By asking stakeholders to share their perspectives on current and near-future scenarios, we aimed to understand how they perceive the scale and nature of disruptions, and to assess the need for government policies and private sector initiatives, both profit and non-profit. We were interested in both factual insights on changes, needs, and demands, as well as the narratives experts use when discussing the Future of Work in Indonesia.

Most experts shared an optimistic view, believing that digitalization will create more jobs than it eliminates. When skepticism arose, it primarily referred to the rise of platform work and the development of artificial intelligence. In general, there was a common demand for more participation in the governance, the need for education and reskilling to keep pace with technological innovation, and efforts to regulate and govern emerging technologies in the area such as strategic industrial policy and data protection regulation. We conclude that more coordination between different stakeholders seems desirable to all sides involved.

Website: asia.fes.de

Imprint

FRIEDRICH-EBERT-STIFTUNG E. V.
GODESBERGER ALLEE 149
53175 BONN
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Issuing Department: Division of International Cooperation, Department for Asia and the Pacific

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Designed by:
Francesca Denise Carlos | Layout and cover design

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ISBN 978-3-98628-614-9

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